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PROCEEDINGS
OF THE
Society of Antiquaries of Scotland



PROCEEDINGS

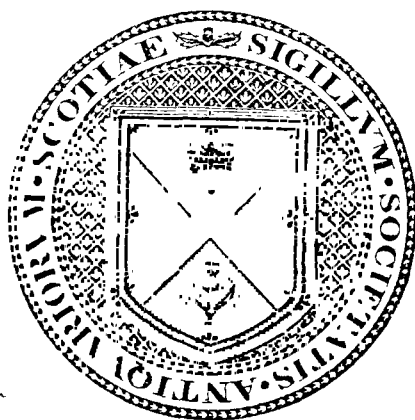
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^SSociety of Antiquaries of ^AScotland^S - vol 49

SESSION

MDCCCCXIV.-MDCCCCXV.

1914 - 1915

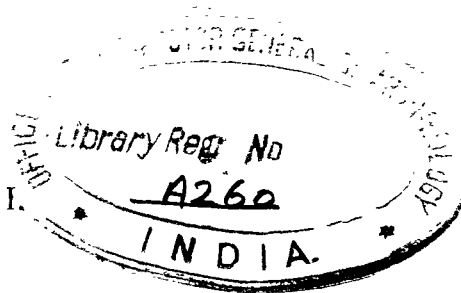


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THE RHIND LECTURESHIP.

(Instituted 1874, in terms of a Bequest for its endowment by the late

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SESSION 1914-1915.

RHIND LECTURER IN ARCHAEOLOGY—

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Keeper of Coins and Medals in the British Museum.

L A W S

OF THE

SOCIETY OF ANTIQUARIES OF SCOTLAND.

INSTITUTED NOVEMBER 1780 AND INCORPORATED BY
ROYAL CHARTER 6TH MAY 1783.

(Revised and adopted November 30, 1901.)

1. The purpose of the Society shall be the promotion of ARCHÆOLOGY, especially as connected with the investigation of the ANTIQUITIES AND HISTORY OF SCOTLAND.

2. The Society shall consist of Fellows, Honorary Fellows, Corresponding Members, and Lady Associates.

3. Candidates for admission as Fellows must sign the Form of Application prescribed by the Council, and must be proposed by a Fellow and seconded by two Members of the Council. Admission shall be by ballot.

4. The Secretaries shall cause the names of the Candidates and of their Proposers to be inserted in the billet calling the Meeting at which they are to be balloted for. The Ballot may be taken for all the Candidates named in the billet at once; but if three or more black balls appear, the Chairman of the Meeting shall cause the Candidates to be balloted for singly. Any Candidate receiving less than two-thirds of the votes given shall not be admitted.

5. Honorary Fellows shall consist of persons eminent in Archæology, who must be recommended by the Council, and balloted for in the same way as Fellows; and they shall not be liable for any fees of admission or annual subscriptions. The number of Honorary Fellows shall not exceed twenty-five.

6. Corresponding Members must be recommended by the Council and balloted for in the same way as Fellows, and they shall not be liable for any fees of admission or annual subscriptions.

7. Ladies who have done valuable work in the field of Archæology may be admitted as Lady Associates. The number of Lady Associates shall not exceed twenty-five. They

shall be proposed by the Council, and balloted for in the same way as Fellows, and shall not be liable for any fees of admission or annual subscriptions.

8. Before the name of any person is added to the List of Fellows, such person shall pay to the funds of the Society Two Guineas as an entrance fee and One Guinea for the current year's subscription, or may compound for the entrance fee and all annual subscriptions by the payment of Twenty Guineas at the time of admission. Fellows may compound for future annual subscriptions by a single payment of Fifteen Guineas after having paid five annual subscriptions; or of Ten Guineas after having paid ten annual subscriptions.

9. The subscription of One Guinea shall become due on the 30th November in each year for the year then commencing; and if any Fellow who has not compounded shall fail to pay the subscription for three successive years, due application having been made for payment, the Treasurer shall report the same to the Council, by whose authority the name of the defaulter may be erased from the List of Fellows.

10. Every Fellow not being in arrears of the annual subscription shall be entitled to receive the printed Proceedings of the Society from the date of election.

11. None but Fellows shall vote or hold any office in the Society.

12. Subject to the Laws and to the control of the Society in General Meetings, the affairs of the Society shall be managed by a Council elected and appointed as hereinafter set forth. Five Members of the Council shall be a quorum.

13. The Office-Bearers of the Society shall consist of a President, three Vice-Presidents, two Secretaries for general purposes, two Secretaries for Foreign Correspondence, a Treasurer, two Curators of the Museum, a Curator of Coins, and a Librarian. The President shall be elected for a period of five years, and the Vice-Presidents for a period of three years. One of the Vice-Presidents shall retire annually by rotation and shall not again be eligible for the same office until after the lapse of one year. All the other Office-Bearers shall be elected for one year and shall be eligible for re-election.

14. In accordance with the agreements subsisting between the Society and the Government, the Board of Manufactures (now the Board of Trustees) shall be represented on the Council by two of its Members (being Fellows of the Society) elected annually by the Society. The Treasury shall be represented on the Council by the King's and Lord Treasurer's Remembrancer (being a Fellow of the Society).

15. The Council shall consist of the Office-Bearers, the three representative Members above specified, and nine Fellows, elected by the Society.

16. Three of the nine elected Members of Council shall retire annually by rotation, and shall not again be eligible till after the lapse of one year. Vacancies among the elected Members of Council and Office-Bearers occurring by completion of term of office, by retirement on rotation, by resignation, by death or otherwise, shall be filled by election at the

LAWS OF THE SOCIETY.

xv

Annual General Meeting. The election shall be by Ballot, upon a list issued by the Council for that purpose to the Fellows at least fourteen days before the Meeting.

17. The Council may appoint committees or individuals to take charge of particular departments of the Society's business.

18. The Annual General Meeting of the Society shall take place on St Andrew's Day, the 30th of November, or on the following day if the 30th be a Sunday.

19. The Council shall have power to call Extraordinary General Meetings when they see cause.

20. The Ordinary Meetings of the Society shall be held on the second Monday of each month, from December to May inclusive.

21. Every proposal for altering the Laws must be made through the Council; and the Secretaries, on instructions from the Council, shall cause intimation thereof to be made to all the Fellows at least one month before the General Meeting at which it is to be determined on.

Form of Special Bequest.

I, A. B., do hereby leave and bequeath to the Society of Antiquaries of Scotland incorporated by Royal Charter, my collection of _____, and I direct that the same shall be delivered to the said Society on the receipt of the Secretary or Treasurer thereof.

General Form of Bequest.

I, A. B., do hereby leave and bequeath to the Society of Antiquaries of Scotland incorporated by Royal Charter, the sum of £ _____ sterling [*to be used for the general purposes of the Society*] [*or, to be used for the special purpose, or object, of* _____], and I direct that the said sum may be paid to the said Society on the receipt of the Treasurer for the time being.

LIST OF THE FELLOWS

OF THE

SOCIETY OF ANTIQUARIES OF SCOTLAND,

NOVEMBER 30, 1915.

PATRON :
HIS MAJESTY THE KING.

- | | |
|--|---|
| 1879. ABERCROMBY, The Hon. JOHN, LL.D., 62 Palmerston Place,— <i>President</i> . | 1894. ANGUS, ROBERT, Ladykirk, Monkton, Ayrshire. |
| 1896.*ADAM, FRANK, c/o The Straits Trading Co., Ltd., 11 Collyer Quay, Singapore. | 1910. ANNAN, J. CRAIG, Glenbank, Lenzie. |
| 1899. AGNEW, Sir ANDREW N., Bart., Lochnaw Castle, Stranraer. | 1900. ANSTRUTHER, Sir RALPH W., Bart., Balcaskie, Pittenweem. |
| 1884. AGNEW, Sir STAIR, K.C.B., M.A., 22 Buckingham Terrace. | 1897. ANSTRUTHER-GRAY, WILLIAM, M.P., Major, Royal Horse Guards, Kilmany, Fife. |
| 1892. AILSA, The Most Hon. The Marquess of, Culzean Castle, Maybole. | 1914. ARMITAGE, Captain HARRY, late 15th Hussars, The Grange, North Berwick. |
| 1906. AITKEN, JOHN, LL.D., F.R.S., Ardenlea, Falkirk. | 1910. ARMSTRONG, A. LESLIE, 14 Swaledale Road, Millhouses, Sheffield. |
| 1905. ALEXANDER, R. S., Grant Lodge, 18 Lomond Road, Trinity. | 1912. ARMSTRONG, CLEMENT, Eskholm, Langholm. |
| 1909. ALISON, JAMES PEARSON, F.R.I.B.A., Ladylaw, Hawick. | 1901. ARTHUR, ALEXANDER THOMSON, M.B., C.M., Blair Devenick, Cults, Aberdeen. |
| 1908. ALLINGHAM, HUGH, M.R.I.A., Provincial Bank House, Ballyshannon, Co. Donegal, Ireland. | 1904. ARTHUR, Sir MATTHEW, Bart., Carlung, Fullarton, Troon. |
| 1907. ANDERSON, JAMES LAWSON, 45 Northumberland Street. | 1910. ASHER, JOHN, 1 Muirhall Terrace, Perth. |
| 1897. ANDERSON, Major JOHN HAMILTON, 2nd East Lancashire Regiment, c/o Messrs Cox & Co., 16 Charing Cross, London. | 1889. ATHOLL, His Grace The Duke of, K.T., Blair Castle, Blair Atholl. |
| 1911. ANDERSON, JOHN N., J.P., Solicitor, Stornoway. | 1900.*BAIRD, JOHN G. ALEXANDER, Wellwood, Muirkirk, Ayrshire. |
| 1902.*ANDERSON, Major ROBERT DOUGLAS, c/o The Manager, Lloyd's Bank, Paignton, Devon. | 1891. BAIRD, WILLIAM, J.P., Clydesdale Bank, Portobello. |
| 1871.*ANDERSON, Sir ROBERT ROWAND, LL.D., H.R.S.A., Architect, 16 Rutland Square. | 1913. BAIRD, WILLIAM A., Lennoxlove, Haddington. |
| 1887.*ANDERSON-BERRY, DAVID, M.D., LL.D., F.R.S.E., Versailles, 19 Stanhope Road, Highgate, London, N. | 1883. BALFOUR, CHARLES BARRINGTON, Newton Don, Kelso. |
| 1913. ANGUS, Miss MARY, Immeriach, Blackness Road, Dundee. | 1915. BALLANTINE, JAMES, Goodtrees, Murrayfield. |
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| | 1909. BARCLAY, OSWALD, 17 Gayfield Square. |

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1893. KAYE, WALTER JENKINSON, B.A., F.S.A., Pembroke, Harrogate.

1912. KELLY, JOHN KELSO, 105 Morningside Drive.
- 1870.*KELTIE, JOHN S., LL.D., Secretary, Royal Geographical Society, 30 Abbey Gardens, Abbey Road, London, N.W.
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1911. KENNEDY, ALEXANDER BURGESS, 18 East Claremont Street.
- 1880.*KENNEDY, JOHN, M.A., 25 Abingdon Street, Westminster.
1907. KENT, BENJAMIN WILLIAM JOHN, Tatefield Hall, Beckwithshaw, Harrogate.
1907. KENT, BRAMLEY BENJAMIN, Tatefield Hall, Beckwithshaw, Harrogate.
1910. KER, CHARLES, M.A., C.A., Easterton, Milngavie, Stirlingshire.
1912. KER, JAMES INGLIS, 162 West Princes Street, Glasgow.
- 1889.*KERMODE, PHILIP M. C., Advocate, Glen Aldyn, Ramsey, Isle of Man.
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- 1911.*KETCHEN, W. T., W.S., Keeper of the General Register of Sasines, H.M. General Register House.
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1912. KING, CHARLES, 21 Newton Place, Glasgow.
- 1912.*KING, SIR JOHN WESTALL, Bart., Stanmore, Lanark.
- 1900.*KINTORE, The Right Hon. The Earl of, G.C.M.G., LL.D., Keith Hall, Inverurie.
1912. KIRKE, Miss KATE JOHNSTONE, Hilton, Burntisland.
1896. KIRKPATRICK, JOHN G., W.S., 32 Morningside Park, Edinburgh.
1906. KNOWLES, Captain WILLIAM HENRY, F.S.A., Little Bridge, Gosforth, Newcastle-on-Tyne.
1910. LAIDLER, PERCY WARD, L.D.S., R.C.S., Edin., Philipstown, C.P., South Africa.
1890. LAING, JAMES H. W., M.A., B.Sc., M.B., C.M., 9 Tay Square, Dundee.
1899. LAMB, JAMES, Leabrae, Inverary Terrace, Dundee.
- 1901.*LAMONT, SIR NORMAN, Bart., M.P., of Knockdow, Toward, Argyllshire.
- 1892.*LANG, Lieut.-Col. JAMES, 21 Kelvinside Terrace, Glasgow.
1893. LANGWILL, ROBERT B., 7 St Leonard's Bank, Perth.
- 1882.*LEADBETTER, THOMAS GREENSHIELDS, of Stobie-side, Strathaven.
- 1910.*LEIGH, Captain JAMES HAMILTON, Bindon, Wellington, Somerset.
1907. LEIGHTON, JOSEPH MACKENZIE, Librarian, Public Library, Greenock.
1907. LENNON, DAVID, M.D., F.R.A.S., Tayside House, 162 Nethergate, Dundee.
- 1884.*LENNOX, JAMES, Eden Bank, Dumfries.
- 1857.*LESLIE, CHARLES STEPHEN, of Balquhain, 11 Chanonry, Aberdeen.
- 1902.*LEVESON-GOWER, F. S., Travellers Club, Pall Mall, London.
1907. LIND, GEORGE JAMES, 121 Rua do Golgotha, Oporto, Portugal.
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1890. LINDSAY, LEONARD C., 22 Chester Square, London, S.W.
1892. LINTON, SIMON, Oakwood, Selkirk.
- 1881.*LITTLE, ROBERT, Ardenlea, Northwood, Middlesex.
1915. LOCKHART, JOHN Y., 12 Victoria Gardens, Kirkcaldy.
1904. LOCKHART, Sir SIMON MACDONALD, Bart., of Lee and Carnwath, The Lee, Lanark.
- 1901.*LONEY, JOHN W. M., 6 Carlton Street.
1882. LORIMER, GEORGE, Durisdeer, Gillsland Road.
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- 1873.*LUMSDEN, HUGH GORDON, Clova, Lumsden, Aberdeenshire.
1905. LUSK, Rev. DAVID COLVILLE, 15 The Turl, Oxford.
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1915. LYON, Rev. W. T., Christ Church Rectory, Lanark.
1910. LYONS, ANDREW W., 44 India Street.
1892. MACADAM, JOSEPH H., 38 Shoe Lane, London.
1910. M'BAIN, WILLIAM CROSS, J.P. (no address).
1914. MACCALLUM, Rev. DONALD, Minister of Lochs, Manse of Lochs, Lewis.
1908. M'CONACHIE, Rev. WILLIAM, The Manse, Lauder.
1915. M'CORMICK, ANDREW, Town Clerk, Newton-Stewart, 66 Victoria Street, Newton-Stewart.
1889. MACCORMICK, Rev. FREDERICK, H. J., Wrock wardine Wood Rectory, Wellington, Salop.
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1885. MACDONALD, COLL REGINALD, M.D., St Lawrence, Ayr.
- 1900.*MACDONALD, GEORGE, M.A., LL.D., 17 Learmonth Gardens,—*Curator of Coins*.
1879. MACDONALD, JAMES, W.S., 21 Thistle Street.
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1909. MACDONALD, JOHN, Sutherland Arms Hotel, Golspie.
- 1890.*MACDONALD, JOHN MATHESON, Moor Hill, Farnham, Surrey.
1882. MACDONALD, KENNETH, Town Clerk of Inverness.
1890. MACDONALD, WILLIAM RAE, Neidpath, Wester Coates Avenue.
1896. MACDOUGALL, SIR JAMES PATTEN, K.C.B., Keeper of the Records of Scotland and Registrar-General, of Gallanach, Oban, 39 Heriot Row.
- 1872.*M'DOWALL, THOMAS W., M.D., East Cottingwood, Morpeth.
1908. M'ELNEY, Rev. ROBERT, M.A., The Manse, Downpatrick, County Down.
1911. M'EWEN, HUGH DRUMMOND, Lyndhurst, Primrose Bank Road, Trinity.
1860. M'EWEN, JOHN COCHRANE, Trafford Bank, Inverness.
1892. M'EWEN, Rev. JOHN, Dyke, Forres.
1903. M'EWEN, W. C., M.A., W.S., 9 South Charlotte Street.
1899. MACFARLANE-GRIEVE, W. A., M.A. and S.C.L. Oxon., M.A. Cantab., of Penchrise and Edenhall, Roxburghshire, Impington Park, Cambridge-shire.
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- 1901.*MACGREGOR, ALASDAIR R., of Macgregor, The Hermitage, Rothesay, Isle of Bute.
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- 1897.*MACINTYRE, P. M., Advocate, Auchengower, Brackland Road, Callander.
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1888. MACKAY, J. F., W.S., Whitehouse, Cramond Bridge, Midlothian.
1912. MACKAY, NORMAN DOUGLAS, M.B., Ch.B., B.Sc., Dall-Avon, Aberfeldy.
1882. MACKAY, WILLIAM, LL.D., Solicitor, Inverness.
1909. MACKEAN, NORMAN M., Parkgate, Paisley.
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- 1872.*MACKENZIE, Rev. JAMES B., 6 Woodburn Terrace.
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1882. MACKENZIE, R. W. R., Earlishall, Leuchars, Fife.
- 1870.*MACKENZIE, Sheriff THOMAS, Tain.
1904. MACKENZIE, WILLIAM COOK, 38 Mount Ararat Road, Richmond-on-Thames.
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- 1911.*MACKIE, PETER JEFFREY, of Glenreassidell, and Corraith, Symington, Ayrshire.
- 1888.*MACKINLAY, J. M., M.A., The Lee, 18 Colinton Road, Merchiston.
1913. MACKINTOSH, H. B., Redhythe, Elgin.
1893. MACKINTOSH, WILLIAM FYFE, Procurator-Fiscal, 33 Magdalen Yard Road, Dundee.
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- 1885.*MACLEHOSE, JAMES, M.A., LL.D., 7 University Gardens, Glasgow.
1910. MACLEOD, FREDERICK THOMAS, 36 St Albans Road.
- 1890.*MACLEOD, Sir REGINALD, K.C.B., Vinters, Maidstone, Kent.
1909. MACLEOD, ROBERT CRAWFORD, 19 Scotland Street.
1907. MACLEOD, Rev. WILLIAM H., B.A. Cantab., Manse of Buchanan, Drymen.
1875. MACMATH, WILLIAM, 16 St Andrew Square.
1905. MACMILLAN, H. P., Advocate, 32 Moray Place.
1915. MACNEIL, ROBERT LISTER, of Barra, The York-shire, Washington, U.S.A.
1909. MACPHAIL, J. R. N., Advocate, 17 Royal Circus.
1913. MACPHATER, CHARLES, 96 Langside Avenue, Glasgow.
1886. MACPHERSON, ARCHIBALD, Architect, 7 Young Street.

1909. MACRAE, Capt. COLIN, of Feoirlinn, Colintrave, Argyll.
1908. MACRAE, Rev. DONALD, B.D., The Manse, Edderton, Ross-shire.
1914. MACRAE - GILSTRAP, Lieutenant - Colonel JOHN, of Eilean Donan, Ballimore, Otter Ferry, Argyll.
- 1882.*MACRITCHIE, DAVID, C.A., 4 Archibald Place.
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1896. MALLOCH, JAMES, M.A., Dudhope Villa, Dundee.
1914. MALLOCH, JAMES J., M.A., Wakeheld, Juniper Green.
1901. MANN, LUDOVIC M'LELLAN, 144 St Vincent Street, Glasgow.
1909. MANSON, WILLIAM, Searcher of Records, 18 Esslemont Road.
1915. MANUEL, Rev. D. G., Manse of Mertoun, St Boswells.
1906. MARSHALL, HENRY B., Rachan, Broughton, Peeblesshire.
1885. MARSHALL, WILLIAM HUNTER, Callander, Perthshire.
1915. MARTIN, JAMES H., Hollybank, Panmure Terrace, Dundee.
1909. MARTIN, Rev. JOHN, 34 Inverleith Terrace.
1908. MASTIN, Professor JOHN, M.A., D.Sc., Ph.D., Litt.D., LL.D., etc., Woodleigh House, Totley Brook, Sheffield.
1892. MATHESON, AUGUSTUS A., M.D., 41 George Square.
1884. MAXWELL, The Right Hon. Sir HERBERT EUSTACE, Bart., LL.D., D.C.L., of Monreith, Wigtonshire.
- 1892.*MAXWELL, Sir JOHN STIRLING, Bart., LL.D., Pollok House, Pollokshaws.
1904. MAY, THOMAS, F.E.I.S., Glenearn, Perth Road, Crieff.
1900. MENZIES, W. D. GRAHAM, of Pitcur, Hallyburton House, Coupar-Angus.
1878. MERCER, Major WILLIAM LINDSAY, Huntingtower, Perth.
1885. METCALFE, Rev. W. M., D.D., South Manse, Paisley.
1914. MIDDLEMISS, Rev. J. T., 3 The Beeches, West Didsbury, Manchester.
1882. MILLAR, ALEXANDER H., LL.D., Rosslynn House, Clepington Road, Dundee.
1896. MILLER, ALEXANDER C., M.D., Craig Linnhe, Fort-William.
- 1878.*MILLER, GEORGE ANDERSON, W.S., Knowehead, Perth.
- 1910.*MILLER, JAMES, Headmaster, Fern Public School, Brechin.
1904. MILLER, JOHN CHARLES, North of Scotland and Town and County Bank, 67 St Vincent Street, Glasgow.
- 1907.*MILLER, ROBERT SCHAW, W.S., 14 Rosebery Crescent.
1911. MILLER, STEUART NAPIER, Lecturer in Roman History, The University, Glasgow.
1884. MITCHELL, HUGH, Solicitor, Pitlochry.
- 1886.*MITCHELL, RICHARD BLUNT, of Polmood, 17 Regent Terrace.
- 1890.*MITCHELL, SYDNEY, Architect, The Pleasance, Gullane.
- 1882.*MITCHELL - THOMSON, Sir MITCHELL, Bart., 6 Charlotte Square.
1907. MOFFATT, ALEXANDER, M.A., LL.B., Advocate, Sheriff-Substitute of Stirlingshire, Arnotdale, Falkirk.
1908. MONTGOMERIE, JOHN CUNNINGHAM, of Dalmore, Stair, Ayrshire.
1895. MORAY, The Right Hon. The Earl of, Kinfauns Castle, Perth.
1882. MORRIS, JAMES ARCHIBALD, Architect, Wellington Chambers, Ayr.
1907. MORRIS, JOSEPH, Fern Bank, Clermiston Road, Corstorphine.
1882. MORRISON, HEW, LL.D., Librarian, Edinburgh Public Library, Torrisdale, 3 Corrennie Gardens.
- 1887.*MOUBRAY, JOHN J., Naemoor, Rumbling Bridge.
1904. MOUNSEY, J. L., W.S., Professor of Conveyancing, University of Edinburgh, 24 Glencairn Crescent.
1897. MOXON, CHARLES, 77 George Street.
1889. MUIRHEAD, GEORGE, F.R.S.E., Commissioner for the Duke of Richmond and Gordon, Speybank, Fochabers.
- 1879.*MUNRO, ROBERT, M.A., M.D., LL.D., Elmbank, Largs, Ayrshire.
- 1890.*MUNRO, Rev. W. M., New Park, St Andrews.
1899. MUNRO-FERGUSON, His Excellency The Right Hon. Sir RONALD CRAUFURD, of Novar, G.C.M.G., Raith, Kirkcaldy.
1911. MURCHIE, JAMES, Penrioch, Kingcase, Prestwick, Ayrshire.
1906. MURRAY, ANDREW ERNEST, W.S., 10 Ann Street.
1910. MURRAY, CHARLES HOPE, jun., Stockbroker, 98 West George Street, Glasgow.
- 1878.*MURRAY, DAVID, M.A., LL.D., 169 West George Street, Glasgow.
1906. MURRAY, JOHN CONGREVE, 18 Lennox Street.
1911. MURRAY, KEITH R., B.A., 27 St Leonard's Terrace, Chelsea, London.
1884. MURRAY, PATRICK, W.S., 7 Eton Terrace.
1905. MURRAY, P. KEITH, W.S., 1 Douglas Gardens.

- 1905.*NAISMITH, WILLIAM W., C.A., 57 Hamilton Drive, Glasgow.
- 1911.*NAPIER, GEORGE G., M.A., 9 Woodside Place, Glasgow.
1907. NAPIER, HENRY M., Milton House, Bowling.
1896. NAPIER, THEODORE, c/o Mrs Farquharson, 10 Melville Crescent.
- 1891.*NEILSON, GEORGE, LL.D., Wellfield, 76 Partickhill Road, Glasgow.—*Vice-President*.
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1887. NEWTON, R. N. H., 3 Eglinton Crescent
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- 1877.*NIVEN, ALEXANDER T., C.A., 28 Fountainhall Road.
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1898. NOTMAN, JOHN, F.F.A., 176 Newhaven Road,—*Treasurer*.
1910. OGILVY, Mrs M. G. C. NISBET-HAMILTON, of Belhaven, Dirleton, and Winton, Biel House, Prestonkirk.
- 1907.*OKE, ALFRED WILLIAM, B.A., F.L.S., 32 Denmark Villas, Hove, Sussex.
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1906. PATERSON, Miss OCTAVIA G., Ashmore, Helensburgh.
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1880. PATTERSON, JAMES K., Ph.D., LL.D., President Emeritus, State University of Kentucky, Lexington, Kentucky, U.S.A.
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- 1871.*PAUL, Sir GEORGE M., LL.D., W.S., Deputy Keeper of the Signet, 16 St Andrew Square.
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1913. PAUL, J. N. WILFRED, B.A., M.R.E.I.S., Rector, Grammar School, Alwar, Rajputana.
- 1902.*PAULIN, Sir DAVID, F.F.A., 6 Forres Street.
1891. PEACE, THOMAS SMITH, Architect, Junction Road, Kirkwall.
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1879. PEDDIE, JOHN M. DICK, Architect, 8 Albyn Place.
1912. PORTEOUS, ALEXANDER, Ancaster House, St Fillans, Perthshire.
- 1901.*PORTLAND, His Grace The Duke of K.G., Welbeck Abbey, Notts.
1911. PRESTON, FRANK A. B., Architect, Ardwell, 16 Waverley Park, Shawlands, Glasgow
1905. PRICE, C. REES, Walnuts, Broadway, Worcester-shire.
1900. PRIMROSE, Rev. JAMES, M.A., 58 West Princes Street, Glasgow.
1906. PRINGLE, ROBERT, 11 Barnton Gardens, Davidson's Mains.
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1912. QUICK, RICHARD, Superintendent of Art Gallery and Antiquities, Bristol Museum, Bristol.
1906. RAIT, ROBERT SANGSTER, 31 Lilybank Gardens, Glasgow.
1891. RAMSAY, WILLIAM, Bowland, Stow.
1908. RANKIN, WILLIAM BLACK, of Cleddans, 9 Landsdowne Crescent.
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1913. RATTRAY, GEORGE D., 7 Springfield, Dundee.
1906. RAVEN, ALEXANDER JAMES, c/o The Capital and Counties Bank, Corhill, Ipswich.
1899. REA, ALEXANDER, Superintendent of the Archaeological Survey of South India, Madras.
1901. REID, ALAN, F.E.I.S., The Loaning, Merchiston Bank Gardens.
1909. REID, ALPHONSO STODART, Bank of England, Manchester.
- 1897.*REID, Rev. EDWARD T. S., M.A., Ravelston, 994 Great Western Road, Glasgow.

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1896. RICHARDSON, RALPH, W.S., 10 Magdala Place.
- 1886.*RITCHIE, CHARLES, S.S.C., 20 Hill Street.
1907. ROBB, JAMES, LL.B., 7 Alvanley Terrace.
- 1898.*ROBERTS, ALEXANDER F., Fairmile, Selkirk.
1905. ROBERTS, JOHN, C.M.G., Littlebourne House, Dunedin, New Zealand.
1914. ROBERTS, J. HUBERT, Bryntirion, Eaton Grove, Swansea.
- 1901.*ROBERTS, THOMAS J. S., Drygrange, Melrose.
1879. ROBERTSON, GEORGE, 6 Craighennochie Terrace, Burntisland.
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1913. ROBERTSON, JOHN CHARLES (no address).
- 1886.*ROBERTSON, ROBERT, Huntly House, Dollar.
1905. ROBERTSON, W. G. AITCHISON, M.D., D.Sc., F.R.C.P.E., Mayfield Lodge, 2 Mayfield Gardens.
1914. ROBISON, JOSEPH, 14 Castle Street, Kirkeudbright.
- 1871.*ROLLO, The Right Hon. Lord, Duncrub House, Dunning.
1905. ROLLO, JAMES A., Solicitor, Argyle House, Maryfield, Dundee.
1910. ROMANES, CHARLES S., C.A., 3 Abbotsford Crescent.
- 1872.*ROSEBURY, The Right Hon. The Earl of, K.G., K.T., LL.D., Dalmeny Park.
1876. ROSS, ALEXANDER, LL.D., Architect, Queensgate Chambers, Inverness.
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1911. SAMUEL, JOHN SMITH, 8 Park Avenue, Glasgow, W.
1907. SANDEMAN, DAVID D., Cairniebank House, Arbroath.
- 1903.*SAYCE, Rev. A. H., M.A., LL.D., D.D., Professor of Assyriology, Oxford, 8 Chalmers Crescent, Edinburgh,—*Foreign Secretary*.
1912. SCLATER, Rev. HENRY GUY, Bowmore, Islay.
1910. SCOBIE, Captain IAIN H. MACKAY, of the 1st Essex Regiment, c/o Messrs COX & Co., Charing Cross, London, S.W.
1892. SCOTT, Sir JAMES, J.P., Rock Knowe, Tayport.
1903. SCOTT, JOHN, W.S., 13 Hill Street.
1901. SCOTT, J. H. F. KINNAIRD, of Gala, Gala House, Galashiels.
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1893. SCOTT-MONCRIEFF, Sir COLIN, 11 Cheyne Walk, Chelsea, London.
1893. SCOTT-MONCRIEFF, DAVID, W.S., 24 George Square.
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1913. SHAND, J. HARVEY, W.S., 38 Northumberland Street.
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1907. SHEPPARD, THOMAS, F.G.S., Curator of the Municipal Museum, Hull.
1892. SHIELLS, HENRY K., C.A., 141 George Street.
1913. SIM, Rev. GUSTAVUS AIRD, Valetta, Malta.
- 1871.*SIMPSON, Sir ALEXANDER R., M.D., LL.D., 52 Queen Street.
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- 1880.*SIMPSON, ROBERT R., W.S., 23 Douglas Crescent.
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1898. SMITH, Rev. JAMES, M.A., B.D., Minister of St George's-in-the-West, 13 Albert Street, Aberdeen.
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- 1892.*SMYTHE, Colonel DAVID M., Methven Castle, Perth.
1892. SOMERVILLE, Rev. J. E., B.D., Castellar, Crieff.
- 1910.*SPENCER, CHARLES LOUIS, 5 Great Western Terrace, Glasgow.

- 1910.*SPENCER, JOHN JAMES, 5 Great Western Terrace, Glasgow.
1913. SQUANCE, THOMAS COKE, M.D., 15 Grange Crescent, Sunderland.
- 1903.*STARK, Rev. WILLIAM A., Minister of Kirkpatrick-Durham, Dalbeattie.
1904. STEEL, Rev. JAMES, D.D., Vicar of Heworth, Gateshead Newcastle-on-Tyne.
1891. STEELE, WILLIAM, Inland Revenue, Marlborough Cottage, Kelso.
1901. STEUART, A. FRANCIS, Advocate, 79 Great King Street.
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1895. STEVENSON, JOHN HORNE, M.A., Advocate, 9 Oxford Terrace.
1913. STEVENSON, NORMAN, Dechmont View, Sandyhills, Shettleston.
1913. STEVENSON, PERCY R., 5 North Charlotte Street.
1904. STEVENSON, Major-General T. R., C.B., Sunnyside, Lanark.
1911. STEWART, A. K., 4 Midmar Avenue.
1879. STEWART, CHARLES POYNTZ, Cheshead Park, Stevenage.
1901. STEWART, Sir HUGH SHAW, Bart., Ardgowan, Greenock.
1901. STEWART, Sir MARK J. McTAGGART, Bart., Ardwell, Stranraer.
1913. STEWART, R. RANNOCH, 12 Lorne Terrace, Maryhill, Glasgow.
1885. STEWART, ROBERT KING, Murdostoun Castle, Newmains, Lanarkshire.
1914. STEWART, W. BALFOUR, Fir Grove, Park Road West, Birkenhead.
1908. STIRTON, Rev. JOHN, B.D., The Manse, Glamis, Forfarshire.
1907. STONESTREET, Rev. WILLIAM T., D.D., Arnholm, 268 Hornby Road, Blackpool.
1889. STRATHERN, ROBERT, W.S., 13 Eglinton Crescent.
1910. STRUTHERS, Sir JOHN, K.C.B., LL.D., 31 Sloane Gardens, London, S.W.
1904. STUART, Rev. JOHN, B.D., Kirkton Manse, Hawick.
1907. STUART, WILLIAM, Barnhouse, Stow, Midlothian.
1897. SULLEY, PHILIP, Moray Street, Elgin.
1887. SUTHERLAND, J. B., S.S.C., 10 Royal Terrace.
- 1899.*SUTHERLAND, ROBERT M., Solsgirth, Dollar.
1897. SUTTIE, GEORGE C., J.P., of Lalathan, Lalathan Lodge, St Cyrus, by Montrose.
1884. SWALLOW, Rev. H. J., M.A., Hawthorn Rectory, Sunderland.
1900. SWINTON, Capt. GEORGE S. C., 2 Hyde Park Street, London.
- 1910.*SYKES, FRANK, Brookfield, Cheadle, Cheshire.
1913. SYKES, FRANK, Lorne Villa, New Barnet, Herts.
1910. TAIT, GEORGE HOPE, 26 High Street, Galashiels.
1901. TAYLOR, Rev. WILLIAM, M.A., Minister of Melville Parish, Montrose.
1910. TERRY, Rev. GEORGE FREDERICK, F.S.A., Rector of St John's Episcopal Church, 10 Learmonth Terrace.
1902. THIN, ROBERT, M.A., M.B., C.M., 25 Abercromby Place.
1910. THOMAS, H. D., M.A. Oxon., Joint Headmaster of Cargillfield School, Clamond Bridge.
1900. THOMSON, ANDREW, Burgh School, Galashiels.
- 1906.*THOMSON, DAVID COOPER, J.P., D.L., Inveravon, Broughty Ferry.
1911. THOMSON, JAMES, M.A., LL.B., Solicitor, 1 West Bell Street, Dundee.
1913. THOMSON, JAMES, The Cedars, Fortisgreen Road, East Finchley, London, N.
1913. THOMSON, JOHN GORDON, S.S.C., 54 Castle Street.
1896. THOMSON, J. MAITLAND, LL.D., Advocate, 3 Grosvenor Gardens.
1910. THOMSON, WILLIAM N., Architect, 85 Constitution Street, Leith.
1898. THORBURN, MICHAEL GRIEVE, Glenormiston, Innerleithen.
1911. THORBURN, WILLIAM, Headmaster of the Public School, Ecclefechan, Dumfriesshire.
1907. THORP, JOHN THOMAS, LL.D., Brunswick House, 54 Princes Road, Leicester.
1910. TODD, HENRY GUICHARDE, Architect, 3 Adelaide Villas, New Barnet, Herts.
- 1902.*TRAIL, H. LIONEL NORTON, F.R.G.S., Capt. 4th Highland Light Infantry, Grattan Lodge, Vicarstown, Stradbally, Queen's County, Ireland.
1899. TULLOCH, Major-Gen. Sir ALEXANDER BRUCE, K.C.B., C.M.G., Llanwysk, Crickhowell, S. Wales.
- 1887.*TURNBULL, WILLIAM J., 16 Grange Terrace.
1901. TURNBULL, W. S., Aikenshaw, Roseneath.
- 1865.*TURNER, Sir WILLIAM, K.C.B., M.B., LL.D., D.C.L., Principal of the University of Edinburgh, 6 Eton Terrace.
- 1878.*URQUHART, JAMES, N.P., Assistant Keeper, General Register of Sasines, 13 Danube Street.
- 1905.*USHER, Sir ROBERT, Bart., of Norton and Wells, Wells, Hawick.

1904. WADDELL, JAMES ALEXANDER, of Leadloch, 12 Kew Terrace, Glasgow.
1909. WALKER, JOHN, M.A., Solicitor, 16 Euclid Crescent, Dundee.
1884. WALKER, R. C., Wingate Place, Newport, Fife.
1879. WALLACE, THOMAS, Ellerslie, Inverness.
1915. WARD, The Venerable Archdeacon ALGERNON, M.A. Cantab., The Vicarage, Sturminster-Norton, Dorset.
1876. WATERSTON, GEORGE, 10 Claremont Crescent.
1904. WATLING, H. STEWARD, Architect, White Gables, Dovercourt, Essex.
- 1891.*WATSON, Rev. ALEXANDER DUFF, B.D., U.F.C. Manse, Bourtreebush, Stonehaven.
- 1907.*WATSON, CHARLES B. BOOG, F.R.S.E., Huntly Lodge, 1 Napier Road.
1913. WATSON, G. P. H., 15 Queen Street.
1904. WATSON, JOHN, Architect, 27 Rutland Street.
1908. WATSON, JOHN PARKER, W.S., Greystone, Kinellan Road, Murrayfield.
1904. WATSON, WALTER CRUM, B.A. Oxon., 50 Queen Street.
1912. WATSON, WILLIAM J., M.A., LL.D., F.R.S.E., Professor of Celtic Languages, Literature and Antiquities, University of Edinburgh, 8 Spence Street.
- 1907.*WATT, JAMES, W.S., F.F.A., 24 Rothesay Terrace.
1908. WATT, Rev. LAUCHLAN MACLEAN, M.A., B.D., 7 Royal Circus.
1879. WEDDERBURN, J. R. M., M.A., W.S., 3 Glencairn Crescent.
- 1884.*WHITE, CECIL, 23 Drummond Place.
1914. WHITE, GEORGE DUNCAN, of Kilrenny, 25 Marketgate, Crail.
1904. WHITE, JAMES, St Winnin's, Bearsden, Dumbartonshire.
1903. WHITELAW, ALEXANDER, of Gartshore, Kirkintilloch.
- 1902.*WHITELAW, CHARLES EDWARD, Architect, 141 Bath Street, Glasgow.
1907. WHITFLAW, HARRY VINCENT, Ryden, Kilmacolin, Renfrewshire.
1913. WHITESIDE, Rev. JOSEPH, M.A., Helsington Vicarage, Kendal.
1909. WHITTAKER, CHARLES RICHARD, F.R.C.S., Lyndwood, 27 Hatton Place.
1913. WHITTAKER, Professor EDMUND T., M.A., Hon. Sc.D., F.R.S., 35 George Square.
1908. WILKIE, JAMES, B.L., S.S.C., 108 George Street.
1913. WILKIE - DALYELL, Major Sir JAMES BRUCE, Bart., The Binn, Linlithgow.
1911. WILKINSON, Rev. JOHN, Rector of St Peter's Church, The Rectory, Peterhead.
1894. WILLIAMS, FREDERICK BESSANT, 3 Essex Grove, Upper Norwood, London, S.E.
1895. WILLIAMS, Rev. GEORGE, Minister of Norrieston U.F. Church, Thornhill, Perthshire.
1897. WILLIAMS, H. MALLAM, Tilehuist, 81 Priory Road, Kew, Surrey.
1908. WILSON, ANDREW ROBERTSON, M.A., M.D., of Hopewell, Aberdeenshire, Cairnmore, Rose Side Road, Liscard, Cheshire.
1913. WILSON, Rev. THOMAS, B.D., The Manse, Stow, Midlothian.
1912. WILSON, Rev. W. B. ROBERTSON, Strathdevon, Dollar.
1888. WILSON, The Very Rev. W. HAY, Dean of Moray, Dingwall.
1907. WOOD, WILLIAM JAMES, 266 George Street, Glasgow.
1903. WRIGHT, Rev. FREDERICK G., Hopton Wafers Rectory, Cleobury Mortimer, Salop.
1915. WRIGHT, JOHNSTONE CHRISTIE, F.R.S.E., Northfield, Colinton, Midlothian.
1913. YOUNG, THOMAS E., W.S., Auchterarder.
- 1912.*YULE, THOMAS, W.S., 16 East Claremont Street.

SUBSCRIBING LIBRARIES.

Baillie's Institution, Glasgow.
 Central Public Library, Bristol.
 Free Public Library, Boston, Massachusetts,
 U.S.A.
 Harvard College, Harvard, U.S.A.
 John Rylands Library, Manchester.
 Public Library Aberdeen.
 Public Library, Dundee.

Reform Club, Pall Mall, London, S.W.
 State Historical Society of Wisconsin, Madison,
 Wisconsin, U.S.A.
 University College, Dublin.
 University of Illinois, Urbana, Illinois, U.S.A.
 Yale University Library, New Haven, Con-
 necticut, U.S.A.

LIST OF THE CORRESPONDING MEMBERS
OF THE
SOCIETY OF ANTIQUARIES OF SCOTLAND.

NOVEMBER 30, 1915.

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|---|---|
| 1900. BUCHANAN, MUNGO, 23 South Alma Street, Falkirk. | 1904. MACKIE, ALEX., Pitressie, Abernethy. |
| 1908. CASH, C. G., Teacher, Edinburgh Academy, 15
Barnton Gardens, David-on's Mains. | 1915. MATHIESON, JOHN, Ordnance Survey Office, 42
East Claremont Street. |
| 1913. FRASER, JOHN, 68 Restalrig Road, Leith. | 1915. MORRISON, MURDO, Bragor, Lewis. |
| 1911. GOUDIE, JAS. M., J.P., Lerwick, Shetland. | 1911. NICOLSON, JOHN, Nybster, Caithness. |
| 1914. KIRKNESS, W., Fernlea, Kirkwall. | 1903. RITCHIE, JAMES, Hawthorn Cottage, Port Elphinstone,
Inverurie. |
| 1910. LIVINGSTONE, MATTHEW, I.S.O., 32 Hermitage
Gardens, Edinburgh. | 1906. SINCLAIR, JOHN, St Ann's, 7 Queen's Crescent,
Edinburgh. |
| 1909. MACKENZIE, DONALD, Inland Revenue, Bonar
Bridge. | 1913. STOUT, MISS ELIZABETH, Hamnavoe, Burra Isle,
Shetland. |
| 1908. MACKENZIE, WILLIAM, Procurator-Fiscal. Ding-
wall. | |

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LIST OF HONORARY MEMBERS
OF THE
SOCIETY OF ANTIQUARIES OF SCOTLAND,
NOVEMBER 30, 1915.

[According to the Laws, the number is limited to TWENTY-FIVE.]

1879.

Rev. Canon WILLIAM GREENWELL, M.A., D.C.L., Durham.

1885.

Dr ERNEST CHANTRE, The Museum, Lyons.

1892.

Professor LUIGI PIGORINI, Director of the Royal Archæological Museum, Rome.

1897.

W. M. FLINDERS PETRIE, D.C.L., LL.D., Edwards Professor of Egyptology in University College, London.

5 Sir JOHN RHYS, M.A., LL.D., Professor of Celtic, and Principal of Jesus College, Oxford.
Dr SOPHUS MÜLLER, Secretary of the Royal Society of Northern Antiquaries, and Director
of the National Museum, Copenhagen.

Professor OSCAR MONTELIUS, LL.D., Emeritus Royal Antiquary of Sweden, Stockholm.

1900.

EMILE CARTAILHAC, 5 Rue de la Chaine, Toulouse.

F. J. HAVERFIELD, M.A., LL.D., Camden Professor of Ancient History, Winshields,
Headington Hill, Oxford.

10 Rev. S. BARING GOULD, Lew Trenchard, North Devon.

ROBERT BURNARD, Huccaby House, Princetown, S. Devon.

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1908.

Sir ARTHUR JOHN EVANS, M.A., D.C.L., Youlbury, near Oxford.

SALOMON REINACH. Director of the National Museum of Antiquities of France, St Germain-en-Laye.

Professor H. DRAGENDORFF, Zehlendorferstrasse, 55 Lichterfelde (West), Berlin-Gr.

15 Professor E. RITTERLING, Director of the Romisch-Germanische Kommission, Eschersheimers Landstrasse 107, Frankfort-on-Main.

1913.

16 JOSEPH ANDERSON, LL.D., H.R.S.A., 8 Great King Street, Edinburgh.

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LIST OF THE LADY ASSOCIATES
OF THE
SOCIETY OF ANTIQUARIES OF SCOTLAND,
NOVEMBER 30, 1915.

[*According to the Laws, the number is limited to TWENTY-FIVE.*]

1888.

The Right Hon. The COUNTESS OF SELKIRK, Balmae, Kirkcudbright.

1890.

Mrs P. H. CHALMERS of Avochie.

1894.

Miss EMMA SWANN, Walton Manor, Oxford.

1895.

Miss H. J. M. RUSSELL of Ashiestiel, Galashiels.

5 Miss AMY FRANCES YULE of Tarradale. Ross-shire.

1900.

Miss M. A. MURRAY, Edwards Library, University College, London.

7 Mrs E. S. ARMITAGE, Westholm, Rawdon, Leeds

SOCIETIES, INSTITUTIONS, &c., EXCHANGING PUBLICATIONS.

Architectural, Archæological, and Historic Society
 of Chester.
 Associated Architectural Societies of Lincoln, etc.
 Berwickshire Naturalists' Club.
 Bristol and Gloucestershire Archæological Society.
 British Archæological Association.
 Buchan Field Club.
 Buteshire Natural History Society.
 Cambrian Archæological Association.
 Cambridge Antiquarian Society.
 Derbyshire Archæological and Natural History
 Association.
 Dumfriesshire Natural History and Antiquarian
 Society.
 Edinburgh Architectural Association.
 Elgin Literary and Scientific Society.
 Essex Archæological Society.
 Gaelic Society of Inverness.
 Geological Society of Edinburgh.
 Glasgow Archæological Society.
 Hawick Archæological Society.
 Historic Society of Lancashire and Cheshire.
 Institute of Archæology, Liverpool.
 Kent Archæological Society.
 New Spalding Club.
 Perthshire Natural History Society.
 Royal Anthropological Institute.
 Royal Archæological Institute of Great Britain
 and Ireland.
 Royal Commission on Ancient and Historical
 Monuments in Scotland.
 Royal Historical Society.
 Royal Irish Academy.
 Royal Numismatic Society.
 Royal Society of Antiquaries of Ireland.
 Scottish Ecclesiological Society.
 Shropshire Archæological Society.

Society of Antiquaries of London.
 Society of Antiquaries of Newcastle-upon-Tyne.
 Society of Architects.
 Somersetshire Archæological and Natural History
 Society.
 Stirling Natural History and Archæological
 Society.
 Surrey Archæological Society.
 Sussex Archæological Society.
 Thoresby Society.
 Viking Club.
 Wiltshire Archæological Society.
 Yorkshire Archæological Society.

FOREIGN SOCIETIES, UNIVERSITIES, MUSEUMS, &c.

Académie des Inscriptions et Belles Lettres, Paris.
 Alterthumsgesellschaft, Königsberg.
 Anthropologische Gesellschaft, Vienna.
 Antiquarische Gesellschaft, Zurich.
 Archæological Survey of India.
 Berliner Gesellschaft für Anthropologie.
 Bosnisch - Herzegovinisches Landes - Museum,
 Sarajevo.
 British School at Rome.
 Bureau of Ethnology, Washington.
 Centralblatt für Anthropologie, Stettin.
 California University.
 Christiania University.
 Columbia University.
 Commissione Archeologica Comunale di Roma.
 Ecole d'Anthropologie de Paris.
 Faculté des Sciences de Lyon.
 Foreningen til Norske Fortidsminde-merkens
 Bevaring.
 Gesellschaft für Nutzliche Forschung, Trier.
 Göteborg och Bohusläns Fornminnesföreningen.

Gottingen University.
 Historische und Antiquarische Gesellschaft, Basel.
 Historische Verein für Niedersachsen.
 Institut de Paléontologie Humaine, Paris.
 Kiel University.
 Kongelige Norske Videnskabers Selskab, Trondhjem.
 Leipzig University.
 Musée Guimet, Paris.
 Musée National Suisse à Zurich.
 Museum, Bergen, Norway.
 Museum of Northern Antiquities, Christiania.
 National Museum of Croatia.
 Nordiska Museet, Stockholm.
 Norsk Folkemuseum, Christiania.
 Peabody Museum, Cambridge, Mass., U.S.A.
 Physico-Ekonomische Gesellschaft, Königsberg.
 Prähistorische Kommission der Kaiserlichen Akademie der Wissenschaften in Wien.
 Provincial Museum, Toronto, Canada.
 Reale Accademia dei Lincei, Rome.
 Römisch-Germanisches Central Museum, Mainz.
 Römisch-Germanische Kommission des Kaiserlichen Archäologischen Instituts, Frankfurt am Main.
 Royal Academy of History and Antiquities, Stockholm.
 Royal Bohemian Museum, Prague.
 Royal Canadian Institute, Toronto.
 Royal Society of Northern Antiquaries, Copenhagen.
 Saalburg Kommission, Homburg, v. d. H.
 Smithsonian Institution, Washington, U.S.A.
 Società Romana di Antropologia, Rome.
 Société d'Anthropologie de Paris.
 Société des Antiquaires de l'Ouest.
 Société d'Archéologie de Bruxelles.
 Société Archéologique de Constantine, Algeria.
 Société Archéologique du Midi de la France.
 Société Archéologique de Montpellier.
 Société Archéologique de Moravie.
 Société Archéologique de Namur.
 Société des Bollandists, Brussels.
 Société Finlandaise d'Archéologie, Helsingfors.
 Société d'Histoire et d'Archéologie de Gand.
 Société Nationale des Antiquaires de France.

Städtisches Museum für Volkerkunde, Leipzig.
 Upsala University.
 Verein für Nassauische Alterthumskunde, Wiesbaden.
 Verein von Alterthumsfreunden im Rheinlande, Bonn.

PERIODICALS.

L'Anthropologie, Paris.
The Antiquary, London.

LIBRARIES, BRITISH.

Advocates' Library, Edinburgh.
 Athenæum Club Library, London.
 Bodleian Library, Oxford.
 British Museum Library.
 Chetham's Library, Manchester.
 Durham Cathedral Library.
 Faculty of Procurators' Library, Glasgow.
 Free Library, Edinburgh.
 Free Library, Liverpool.
 Mitchell Library, Glasgow.
 Ordnance Survey Library, Southampton.
 Public Record Office Library, London.
 Royal Library, Windsor.
 Scottish National Portrait Gallery Library.
 Signet Library, Edinburgh.
 Trinity College Library, Dublin.
 United Free Church College Library, Edinburgh.
 University Library, Aberdeen.
 University Library, Cambridge.
 University Library, Edinburgh.
 University Library, Glasgow.
 University Library, St Andrews.
 Victoria and Albert Museum Library, London.

LIBRARIES, FOREIGN.

Imperial Library, Vienna.
 National Library, Paris.
 Newberry Library, Chicago, U.S.A.
 Public Library, Hamburg.
 Royal Library, Berlin.
 Royal Library, Copenhagen.
 Royal Library, Dresden.
 Royal Library, Munich, Bavaria.
 Royal Library, Stockholm.

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PROCEEDINGS

OF THE

SOCIETY OF ANTIQUARIES OF SCOTLAND

HUNDRED AND THIRTY-FIFTH SESSION, 1914-1915

ANNIVERSARY MEETING, 30th November 1914.

THE HON. JOHN ABERCROMBY, LL.D., President,
in the Chair.

W. K. Dickson, LL.D., and Sheriff Scott-Moncrieff were appointed Scrutineers of the Ballot for the election of Office-Bearers.

The Ballot having been concluded, the Scrutineers found and declared the List of the Council for the ensuing year to be as follows:—

President.

The Hon. JOHN ABERCROMBY, LL.D.

Vice-Presidents.

W. T. OLDRIEVE, F.R.I.B.A.
GEORGE NEILSON, LL.D.
WILLIAM MOIR BRYCE.

2 PROCEEDINGS OF THE SOCIETY, NOVEMBER 30, 1914.

Councillors.

JOHN R. FINDLAY,	} <i>Representing the Board of Trustees.</i>	NEIL J. KENNEDY COCHRAN-PATRICK.
The Hon. HEW HAMIL-		PATRICK MURRAY.
TON DALRYMPLE.		JAMES E. CREE.
Sir KENNETH J. MACKENZIE. Bart..		JAMES M. MACKINLAY. M.A.
<i>Representing the Treasury.</i>		DAVID MACRITCHIE.
ERSKINE BEVERIDGE, LL.D.		CHARLES EDWARD WHITELAW.
ANDREW HENDERSON BISHOP.		WILLIAM MACKAY MACKENZIE.

Secretaries.

ROBERT SCOTT-MONCRIEFF, W.S. | J. GRAHAM CALLANDER.

For Foreign Correspondence.

Rev. Professor A. H. SAYCE, LL.D., | Professor G. BALDWIN BROWN.
D.D.

Treasurer.

JOHN NOTMAN, F.F.A., 28 St Andrew Square.

Curators of the Museum.

JAMES CURLE, W.S. | Professor THOMAS H. BRYCE.

Curator of Coins.

GEORGE MACDONALD, LL.D.

Librarian.

W. K. DICKSON, LL.D.

A Ballot having been taken, the following were duly elected
Fellows:—

Captain HARRY ARMITAGE, late 15th Hussars, The Grange, North Berwick.
Rev. DONALD MACCALLUM, Minister of Lochs, Manse of Lochs, Lewis.
W. J. EDMONSTON-SCOTT, M.A., 37 North Castle Street.

The Secretary read the following list of Members deceased since the
last Annual Meeting:—

Corresponding Member.

Rev. J. M. JOASS, LL.D., The Manse, Golspie Elected
1866

Fellows.

	Elected.
JAMES ALLAN, Redtower, Helensburgh	1909
His Grace THE DUKE OF ARGYLL, K.G., K.T., LL.D., Roseneath, Dumbartonshire	1901
Rev. G. F. BURR, Mus.D., J.P., Highfields Park, Halesowen, Worcester- shire	1905
Rev. JAMES CAMPBELL, D.D., Seacraig, Newport, Fife	1865
WALTER J. DOUGLAS CAMPBELL of Innis Chonain, Loch Awe	1883
FREDERICK CORNISH FROST, F.S.A., 5 Regent Street, Teignmouth	1913
JAMES GORDON, W.S., 8 East Castle Road	1884
Sir JOHN MACPHERSON GRANT, Bart., Ballindalloch Castle, Banffshire	1903
R. C. HALDANE of Lochend, Ollaberry, Lerwick	1904
DAVID HENRY, Estherville, Hepburn Gardens, St Andrews	1886
Rev. JAMES KING, St Mary's Vicarage, Berwick-on-Tweed	1912
Sir ARCHIBALD CAMPBELL LAWRIE, LL.D., The Moss, Killearn, Stirling- shire	1914
Sir JOHN MURRAY, K.C.B., LL.D., D.C.L., Challenger Lodge, Wardie	1887
ROBERT PIRRIE, 9 Buckingham Terrace, Glasgow	1885
WILLIAM ROBSON, S.S.C., 12 Albert Terrace	1880
OLIPHANT SMEATON, 37 Mansionhouse Road	1904
ERIC STAIR-KERR, 20 Napier Road	1912
The Right Hon. LORD STRATHCONA AND MOUNT ROYAL, G.C.M.G., 28 Grosvenor Square, London, and Invercoe, Argyllshire	1903
The Right Hon. THE EARL OF WEMYSS AND MARCH, LL.D., Gosford, Longniddry	1872
JOHN WHITE, J.P., Seabank House, Leven, Fife	1911

The meeting resolved to record their sense of the loss the Society had sustained in the death of these members.

Mr R. Scott-Moncrieff, Secretary, read the following Report by the Council on the affairs of the Society for the year ending 30th November 1914, which, on the motion of Sheriff Scott-Moncrieff, was duly approved:—

As the Society is aware, it has been customary for the Secretaries to prepare an Annual Report which was read to the Fellows at the Annual Meeting on St Andrew's Day. This report was in no sense an official report by the Council, and the motion which followed it was not a motion of approval but merely one of thanks to the Secretaries. For some years the Secretaries have felt that this was an unsatisfactory arrangement, both from their own point of view and from that of the Society, and on their initiative the Council has resolved that for the future the Annual Report shall be issued in its name, signed by the President on its behalf,

4 PROCEEDINGS OF THE SOCIETY, NOVEMBER 30, 1914.

and formally approved of by the Society at the Annual Meeting. With this explanation the Council begs to submit its First Annual Report :—

<i>Membership.</i> —The total number of Fellows on the roll at 30th	
November 1913 was	730
At 30th November 1914 was	735
	<hr/>
being an increase of	5

There were 39 new members added to the roll during the year, while 20 members died, 9 resigned, and 5 allowed their membership to lapse.

The Ballot list for the Annual Meeting will forcibly bring before the Society the disastrous effect which the war and the closing of their Library and of the Museum have had on the number of those desirous of joining the Society. They trust that the Fellows will lose no opportunity of bringing the advantages of the Society before their friends and of obtaining as many recruits as possible during the coming year.

Proceedings.—An advance copy of the *Proceedings* for the past year is on the table, from which it will be seen that the number of papers read at the meetings of the Society was 26, being the same as the number read in the preceding year. The proportion of papers dealing with prehistoric subjects is rather larger than usual, viz. 17 as against only 9 dealing with historic matters. Among the prehistoric papers are two by the Director: one describing the excavation of a mote-hill at Hawick; and the other the excavation of a vitrified fort near Dalbeattie, known as the Mote of Mark. The finding of a coin of Henry II. of England in the former and the recovery of many fragments of clay moulds for Celtic ornaments, as well as a considerable quantity of glass from the latter, make the excavation of these two places of peculiar interest to antiquaries as giving an indication of the dates of their occupancy. In the same connection reference may be made to Mr Henderson Bishop's paper on an Oronsay shell-mound and to Mr James Curle's paper on the development and chronology of the Oval Brooch of the Viking time. Mr James Edward Cree and Mr J. Hewat Craw both record the excavation of Bronze Age cairns showing unusual structural features, and Mr J. G. A. Baird reports the discovery of pottery of the Bronze Age beaker-type in hut-circles in Ayrshire in circumstances which point to the vessels having been used for domestic and not for sepulchral purposes. Among the historical papers by far the most important is Mr Oldrieve's on King David II.'s Tower in Edinburgh Castle. The work of excavation and research which resulted in the discovery of the buried ruins of this

ancient building, all trace of which had for long been lost sight of, was undertaken under the personal supervision of Mr Oldrieve, and the thanks of the Society and of all Scotsmen are due to him for the successful accomplishment of an arduous and delicate piece of work.

The volume of *Proceedings* under discussion completes a series, and the Council have now arranged that the same shall be indexed. They are also of opinion that the opportunity of commencing a new series should be taken advantage of to effect improvements in the appearance of the annual volumes and in the quality of the illustrations. A Committee has been appointed to go into details.

The Museum.—There is no need for the Council to state that the most important event in the history of the Society which has occurred during the year is the closing of their Library and of the Museum under their charge. For some little time the Government have had under their consideration the advisability of fire-proofing and reflooring the whole building, and in March of this year the Council received intimation that the work was to be proceeded with shortly and that it was proposed to begin with the side occupied by the Museum and the Society's Library. The Museum was accordingly at once closed and arrangements made for the transference of the collection and Library from the one side of the building to the other. As may be imagined, this was an operation of no small magnitude, and it speaks volumes for the administrative ability of the Director and for the energy of his staff that the whole collection and Library were packed and transferred to the rooms of the National Portrait Gallery within five weeks, and that without, so far as is known, a single article being broken or lost. The work of reflooring the east side of the building will shortly be begun, and is expected to occupy about a year. At its conclusion it will be necessary to retransfer and rearrange the collection, a matter which will probably take another year. Through the courtesy of the Royal Society, it has been arranged that the meetings of the Society of Antiquaries will be held in the rooms of the Royal Society during the winter.

Among the specimens added to the National Collection during the past year attention may be directed to the following as being of most importance:—three Viking oval brooches of brass, one of a style not hitherto represented in the Museum, formed of a single embossed plate, and the other two of a less uncommon design constructed with two convex plates, the upper one of which is pierced: the three were found at two different sites in Orkney, in each case associated with beads of amber, while with the pair of brooches was recovered also an armlet of jet or lignite; a fine circular Celtic brooch of brass engraved with medallions of interlaced

work between panels of zoomorphic and foliaceous design, dated 1712, and found near Fettercairn; a mould of sandstone for casting flat bronze axes and bars from Aberdeenshire, and a remarkable collection of thirty-two roughly dressed leaf-shaped objects of flint found together some years ago in one deposit in the parish of Old Deer, Aberdeenshire, and described by Dr Anderson in our *Proceedings*.

Excavations.—The only excavation conducted by the Society during the past year was that on Traprain Law, near East Linton, in the County of Haddington. The Law, which in former times bore also the name of Dunpender, rises prominently from the undulating terrain that swells upwards from the East Lothian plain to the Lammermuirs. So prominent an object is it in the landscape that its occupation in early times might have been accepted as a foregone conclusion: nevertheless one looks in vain through our *Proceedings* for any account of the unusually interesting defences which lie along its flanks and around its summit.

The proprietor, The Right Hon. A. J. Balfour, having given his consent to excavation, and having kindly agreed to all relics found being presented to the National Museum, a small committee was appointed in the spring to make arrangements and proceed with the work of exploration. The Abercromby Fund not being exhausted, our Excavation Fund showed a balance sufficient to meet all demands on it for one season at least, and work was accordingly commenced early in May and continued till the end of August.

So as to ensure intelligent supervision, four members of the Society undertook to give almost constant attendance of varying periods of duration. For the same reason the staff employed consisted only of two men and a lad, but in these three we were singularly fortunate, as the results amply demonstrate.

Below the top spit practically every spadeful of soil was passed through a half-inch riddle, and, if the extent of the area explored was on that account somewhat restricted, the finds recovered afforded ample compensation. The enceinte of the fort is so large that it will take a number of years to explore it with anything like thoroughness, and, if we can place reliance on surface indications, there is a wealth of relics awaiting us. Already the famous Newstead excavations alone take precedence of Traprain in the quantity and quality of the returns from a single site in Scotland. Of iron objects we have *inter alia* spear heads, a flanged or winged axe of La Tène type, a fine axe hammer, a dagger, and an interesting pair of pincers; of bronze, no less than five terret rings, ten fibulæ (of which four are enamelled), an enamelled clasp, four fine

pins, and numerous pieces of harness mountings; the glass includes many portions of glass armlets, a few beads, and a small ball inlaid with spots of white and reddish-brown enamel. There are many whorls, of baked clay and of stone, fragments of clay moulds, a number of interesting stone-moulds, a stone lamp, many sherds of pottery, and three Roman coins. Among the sherds Roman wares are conspicuous, contrasting markedly with the coarse hand-made products of the native potter, and, while it is too early yet to draw conclusions from these data alone as to the period of occupation of this interesting site, we may emphasise the point that the general *facies* of the Roman pottery appears to be Antonine.

Library.—The additions to the Library have been 56 books and pamphlets by donation and 41 by purchase, and the binding of 143 volumes has been overtaken.

Rhind Lectureship.—The Rhind Lectures were delivered by Dr W. K. Dickson, his subject being “The Development of Writing and Printing in Western Europe.” This year the lecturer is Mr F. C. Eeles, who has chosen for his subject “The Archæology of the Pre-Reformation Church in Scotland, with its Liturgical and Ceremonial Arrangements.”

The Gunning Fellowship.—This year this Fellowship, the original object of which was to enable the staff of the Museum to travel and acquaint themselves with the contents of other Museums, was awarded to the Director, Mr A. O. Curle. Unfortunately the outbreak of the War, and the consequent reduction in the staff, made it impossible for him to be absent for any length of time from the Museum, and he has therefore been unable to take advantage of its benefits.

The Chalmers Jervise Bequest.—This year the prize under this bequest fell to be awarded to the best paper on some prehistoric subject relating to Aberdeenshire, but, in spite of due advertisement, no essays have been received.

A communication was received in July from the Royal Historical Society asking the Council to nominate two members to serve on a Committee for arranging a celebration in honour of the Seven Hundredth Anniversary of Magna Carta. The Council appointed the President of the Society and Mr Moir Bryce to represent them. They also appointed the President to represent the Society on a Committee of the British

8 PROCEEDINGS OF THE SOCIETY, NOVEMBER 30, 1914.

Association being formed to report on the distribution of Bronze Age implements.

The Council feel that although the War hardly lies within the scope of the *Proceedings* of the Society, they cannot close their Report without reference to one phase of it—namely, the destruction that has been wrought by the German forces on the ancient buildings and works of art at Louvain, Malines, and Rheims, and other Belgian and French Cities. In connection with this matter the Council forwarded, in the name of the Society, to the American Ambassador the following letter:—

To His Excellency,

The Ambassador of the United States of America, London.

QUEEN STREET,
EDINBURGH, 27th October 1914.

YOUR EXCELLENCY,—The Society of Antiquaries of Scotland, of which I am the President, is desirous of associating itself with the Society of Antiquaries of London and with the other learned and artistic Societies of Great Britain, in protesting against the deliberate and irremediable destruction wrought by the German troops on the ancient and beautiful buildings and works of art at Louvain, Malines, Rheims, and other Belgian and French cities. Such destruction seems to it to have been unnecessary from a military point of view, and to have exceeded the ordinary license of warlike operations. It is clear that unless some external pressure is brought to bear on the German Government, no monuments, however sacred or historic, can be regarded as safe in the areas affected by the German invasions.

Under these circumstances we venture to hope that your Government, as representing the greatest neutral power, will exert its influence with the German Government to put a stop to acts of destruction which we feel would be hardly justifiable under any circumstances, and which we believe must be abhorrent to many of the German people themselves.

I have the honour to remain,

Your obedient servant,

(Sgd.) JOHN ABERCROMBY,
President.

They also sent, in the name of the Society, a letter of sympathy to the President of the Société nationale des Antiquaires de France, of which the following is a copy:—

Au Secrétariat de la Société nationale des Antiquaires de France.

7th November 1914.

MONSIEUR LE PRÉSIDENT.—Je suis chargé par la Société des Antiquaires d'Écosse, dont je suis le Président, de vous envoyer l'expression de sa profonde sympathie avec la protestation faite par la Société nationale des Antiquaires de France contre les actes de vandalisme délibérés et réitérés commis par l'armée allemande contre les monuments et les souvenirs de passé, et surtout contre l'injure irréparable infligée à l'histoire de France et à l'art européen par le bombardement de la Cathédrale de Reims.

J'ai l'honneur de vous envoyer ci-inclus, la copie d'une lettre à ce sujet qui fut adressée par notre Société à l'Ambassadeur des États-unis.

J'ai l'honneur, Monsieur, d'être, etc.,

(Sgd.) JOHN ABERCROMBY.

Président.

Signed on behalf of the Council.

JOHN ABERCROMBY.

Mr Notman, Treasurer, made the annual statement of the Society's Funds, which was ordered to be printed and circulated among the Members; and, on the motion of the Chairman, a hearty vote of thanks was accorded to Mr Notman for his gratuitous services as Treasurer.

MONDAY, 14th December 1914.

The Hon. JOHN ABERCROMBY, LL.D., President, in the Chair.

The following Donations were announced :—

- (1) By The Right Hon. Sir HERBERT E. MAXWELL, Bart., LL.D.,
D.C.L., F.S.A. Scot.

A collection of objects from Wigtownshire, chiefly prehistoric :—

Perforated Axe-hammer from Drumfad.
Polished Stone Axe from Kirkmabreck.
Axe of Silurian sandstone from Moormains.
Hammer-stone of sandstone from Barlauchlan.

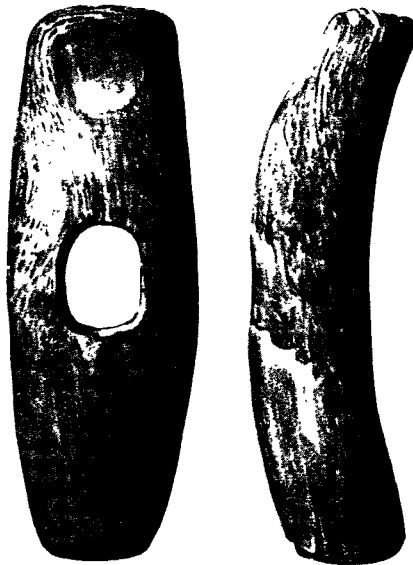


Fig. 1. Hammer of Ox-horn ($\frac{1}{2}$).

Perforated Hammer-head of ox-horn (fig. 1), 4 inches in length,
found in a moss at Glenruther.

Oval Hammer-stone of sandstone from The Airlour.

Pebble of quartz, abraded at one end, from Blairbuy.

Loom Weight from High Creoch, Girthon.

Two small Boxes in the form of books, one dated 1759.

- (2) By the Rev. DONALD MACCALLUM, Minister of Lochs, Lewis, through J. GRAHAM CALLANDER, *Secretary*.

Two Tokens of the Parish of Lochs, Lewis.

- (3) By J. GRAHAM CALLANDER, *Secretary*.

Two small fragments of Samian ware from a kitchen-midden near Berie, Lewis.

Perforated Disc of sandstone, imperfect, from a kitchen-midden near Northton, South Harris.

A collection of Relics from a ruined earthhouse at Udal, North Uist.

An oval Plate of Cetacean bone, with perforations round the edge; a four-sided, pointed Implement of Cetacean bone; a Bone Pin; an object of Bone resembling an imperfect whistle; pieces of coarse Pottery: the head and part of the stem of a small iron shouldered Pin with a ring head, from kitchen-middens in Berneray, Harris.

A number of pieces of coarse Pottery: two Bone Pins: a Bone Peg: a small Pivot of bone; five Scrapers of flint: and several indeterminate objects of Bone, from kitchen-middens in South Uist.

A large triangular block of Cetacean bone with two deep circular depressions on the upper surface, from a kitchen-midden in North Uist.

Fragments of the side and lip of a vessel of hand-made Pottery, from Dun Borenich, Uig, Lewis.

- (4) By NEIL ROBERTSON, Brubster, Shebster, Caithness.

A bronze flat Axe showing incipient flanges, found while cutting a drain at Brubster, Shebster, Parish of Reay, Caithness.

- (5) By MURDO MORRISON, Bragar, Lewis, through J. GRAHAM CALLANDER, *Secretary*.

Collection of objects found in a kitchen-midden at Bragar, Island of Lewis, consisting of:—

A Deerhorn Pick: a portion of a Red Deer's Horn, sawn and perforated: Handle of deerhorn: an oblong object of Bone resembling a playing die: fragment of a Ring of bone: Disc of whalebone: Whorl of whalebone: Whorl of pottery: Disc of micaceous schist: Hammer-stone of quartzite: twenty-four fragments of coarse, hand-made Pottery.

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(6) By R. A. CURLE of Overwells.

Roman Onyx Intaglio from Overwells, Jedburgh, described in vol. xlv. of the *Proceedings*, p. 476.

Books for the Library:—

(1) By HIS MAJESTY'S GOVERNMENT.

Calendar of Letters, Despatches, and State Papers, Vol. x. Edward VI. 1550-1552. London, 1914. 4to.

The Register of the Privy Council of Scotland. Edited by P. Hume Brown, LL.D. Third series. Vol. vi. 1678-1680. Edinburgh, 1914. 8vo.

Calendar of the State Papers relating to Scotland and Mary, Queen of Scots, 1547-1603. Edinburgh, 1914. 8vo.

The Register of the Great Seal of Scotland, 1660-1668. Edited by J. Horne Stevenson, Advocate. Edinburgh, 1914. 8vo.

Calendar of State Papers and Manuscripts relating to English Affairs. Vol. xix. 1625-1626. Edited by Allen B. Hinds, M.A. London, 1913. 8vo.

Calendar of the Patent Rolls preserved in the Public Record Office. Henry VII. Vol. i. 1485-1494. London, 1914. 8vo.

Calendar of State Papers. Foreign Series. Reign of Elizabeth, 1583-1584. London, 1914. 8vo.

(2) By J. HORNE STEVENSON, F.S.A. Scot., the Author.

Heraldry in Scotland. 2 vols. Glasgow, 1914. 4to.

(3) By Professor A. H. SAYCE, F.S.A. Scot., the Author.

The Date of Stonehenge. 1914. Pamphlet. 4to.

(4) By the COUNCIL OF THE SCOTTISH HISTORY SOCIETY.

Highland Papers. Vol. i. Edinburgh, 1914. 8vo.

(5) By the Rev. JAMES PRIMROSE, F.S.A. Scot., the Author.

Mediaeval Glasgow. Glasgow, 1913. 8vo.

(6) By JOHN E. SHEARER, the Author.

The Site of the Battle of Bannockburn. Stirling, 1914. 8vo.

(7) By T. J. WESTROPP, the Author.

Kilkee (Co. Clare) and its Neighbourhood. Part IV. Dunbeg to Kilkee. Part II. King Brian, the Hero of Clontarf. Dublin, 1914. 8vo.

The Promontory Forts and Early Remains of the Coasts of County Mayo. Part IV.

(8) By D. MACRITCHIE, F.S.A. Scot., the Author.

Les Kayaks dans le nord de l'Europe.

Les pygmées chez les anciens Égyptiens et les Hébreux.

Constructions cyclopéennes en Écosse.

Three pamphlets. 1914.

(9) By the COUNTY COUNCIL OF THE COUNTY OF FIFE.

Ancient Monuments and Historical Buildings in the County of Fife. Cupar. 4to.

(10) By the TRUSTEES OF THE BRITISH MUSEUM.

Catalogue of the Greek Coins of Palestine. By GEORGE FRANCIS HILL, M.A. London, 1914. 8vo.

(11) By JAMES MACDONALD, F.S.A. Scot.

The History of the Province of Cat. By the late Rev. ANGUS MACKAY, M.A. Wick, 1914. 4to.

(12) By DAVID THURSTAN SMITH, Hon. Secretary, Hunter Archaeological Society.

Transactions of the Hunter Archaeological Society. Sheffield, 1914. 8vo.

(13) By Professor F. HAVERFIELD, the Author.

Roman Britain in 1913. Oxford, 1914. 8vo.

(14) By JOHN A. INGLIS, F.S.A. Scot., the Author.

The Scotts of Harperrig. Pamphlet. London, 1914. 4to.

(15) By JAMES MACKENZIE, F.S.A. Scot., the Author.

Life and Complete Works of Michael Bruce. Edinburgh, 1914. 8vo.

(16) By W. J. KNOWLES, F.S.A. Scot., the Author.

The Antiquity of Man in Ireland. London, 1914. 8vo.

Purchases, etc., acquired by the Purchase Committee during the Recess, 11th May to 30th November:—

Four Edinburgh Trade Tokens.

A Viking oval Brooch of brass; two Beads of amber and a Bead of blue glass, all found together on the Island of Sanday, Orkney.

A collection of Flint Objects, an Urn with a narrow groove immedi-



Fig. 2. Highland Brooch of Brass (§).

ately below the lip, and a Silver Penny of Mary, Queen of Scots, from Glenluce Sands.

A collection of Flint Objects from the farm of Fairnington, parish and county of Roxburgh.

A circular Highland Brooch of brass, $5\frac{1}{4}$ inches in diameter, pin wanting, ornamented with circles of interlaced foliaceous and geometric design, and bearing on the reverse the letters "E R" and date "1712," found at Bogmuir, near Fettercairn.

Mould of sandstone for flat bronze axes and bars, from the parish

of New Deer, Aberdeenshire; also a collection of thirty-two roughly dressed, leaf-shaped Implements of flint and chert. found together in one deposit at Bulwark, parish of Old Deer.

Axe of polished greenstone, found in a rock cave at Torroble, Lairg, Sutherland.

Collection of Relics from an underground chamber on Links of Minn, Burra, Shetland, consisting of an adze-shaped Implement of micaceous schist, and five pieces of coarse hand-made Pottery.

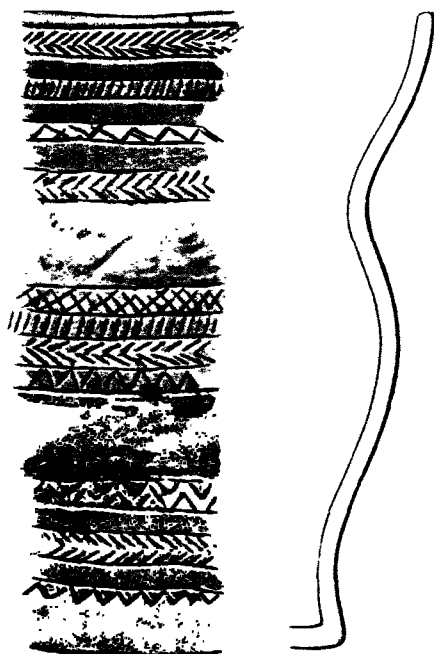


Fig. 3. Urn of Beaker Form. Segment showing Ornamentation, and Section ($\frac{1}{2}$).

A pair of oval Viking Brooches of brass, a Jet Armlet, and an Amber Bead, found near the Broch of Lamiess, south end of the Island of Sanday, Orkney.

Acquired through the King's Remembrancer:—

Fragments of an Urn of the beaker type found in a cist on the farm of Colliston Mill, Arbroath.

During ploughing operations in the spring of this year on the farm of Colliston Mill near Arbroath, a short cist was discovered and duly reported in the press. Within the cist lay a skeleton, said to have been

in good preservation when discovered, but which crumbled away on being exposed; also, adjacent to the head, an urn, a segment and section of which are here illustrated (fig. 3). The vessel, which is of the beaker type, is $6\frac{1}{2}$ inches in height. Fragments of less than one half of it only reached the Museum, but enough to admit of a partial reconstruction sufficiently large to show the form, and scheme of ornamentation.

Food-vessel Urn, 4.7 inches in height, with a groove round the shoulder interrupted by five imperforated flat stops, found with an incinerated interment in a short cist at Flaweraig farm, Kinnaird, Perthshire.



Fig. 4. Urn found at Flaweraig ($\frac{1}{2}$).

The urn, which is shown in the accompanying illustration, was found while a track was being dug for a waterpipe on the east side of the farm.

Books for the Library:—

Das rheinische Germanien in den antiken Inschriften; herausgegeben von Alexander Riese. Berlin, 1914. 8vo.

Die vorgeschichtlichen Altertümer des Grossherzogtums Mecklenburg-Schwerin: bearbeitet von Robert Beltz. Schwerin i. M., 1910. 8vo.

Service des Antiquités de l'Égypte: Catalogue Général des Antiquités Égyptiennes du Musée du Caire, vol. lxix., Nos. 63,001-64,906; Stone Implements, by M. Charles D. Currelly. Caire, 1913. 4to.

Dinanderie, by J. Tavenor-Perry. London, 1910. 4to.

The Antiquity of Man in Europe, by James Geikie, LL.D., D.C.L. Edinb., 1914. 8vo.

Über Megalithgräber und sonstige Grabformen der Lüneburger Gegend, von M. M. Lienau. Würzburg, 1914. 8vo.

Fouilles du Cimetière Barbare de Bourogne, exécutées par MM. Lablotier et Scheurer. Paris, 1914. 4to.

The History of the Province of Cat, by the late Rev. Angus Mackay. Wick, 1914. 4to.

Manuel d'Archéologie Préhistorique; Archéologie Celtique ou Proto-historique, par Joseph Déchelette. Paris, 1914. 8vo.

A Glossary of the Shetland Dialect, by James Stout Angus. Paisley, 1914. 8vo.

The Mearns of Old, by James Crabb Watt, K.C. Edinb., 1914. 8vo.

The following Communications were read:—

I.

CIRCULAR FORTS IN LORN AND NORTH PERTHSHIRE; WITH A NOTE ON THE EXCAVATION OF ONE AT BORENICH. LOCH TUMMEL. BY PROFESSOR WILLIAM J. WATSON, LL.D., F.R.S.E., F.S.A. SCOT.

In a paper printed in the *Proceedings* of the Society for 1912-1913, I described a number of circular structures built of drystone, undressed, the remains of which exist in the basins of the Lyon, the upper Tay, the Tummel, and the Braan. I now give the results of further observations, made during the summer and autumn of 1913, chiefly in the Tummel basin and in the neighbourhood of Dalmally in north-east Lorn.

At the outset I wish to correct two slight misstatements on p. 56 of that paper. There it is stated that there are remains of a fort on the farm of Deanshaugh, at the mouth of Glen Cochuil in Strath Braan. There are no remains now, but only tradition supported by the term *caisteal* in the place-names. Further, there are only two forts in all in the western part of Glenquaich, both of them a little to the east of the shepherd's house at Garrow, on the right bank of the stream. The remains of these are quite distinct, though the wall is gone. They were of the usual type, but are unique, so far as I have seen hitherto, in being only about fifteen yards apart. One of them is in a cultivated field: the other is to the south-west just outside the field. The site is flat, and about a hundred yards from the stream. Unnoted on O.S. maps.

In these additional notes, I shall begin with the remains in Glen

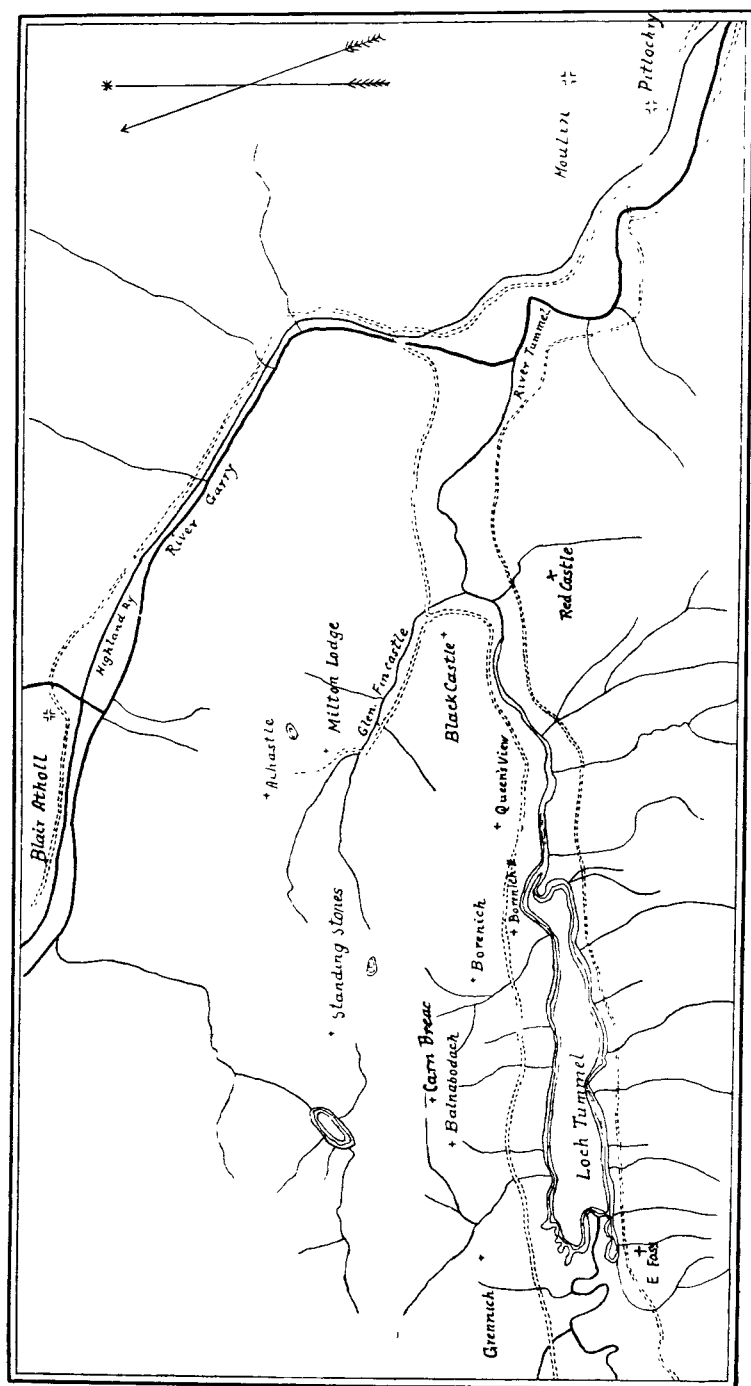


Fig. 1. Map of Tummel Valley, showing positions of the Forts.

Fincastle, which opens off the left bank of the Tummel, five and a half miles above Pitlochry. It is a short glen of three or four miles, but fairly fertile and of good exposure. The name Fincastle is accented on the second part, and it is pronounced in Gaelic *Fonn Chaisteil*, the Castle land. The writer of the *Old Statistical Account* of the parish of Dull (vi. 155) notes in his parish "a very great number of old castles, many of them like watch towers. There is in one glen no less than the ruins of 15 of them. It is called Fincastle or *Fonnchaisteal*, the Land of Castles."¹ It is difficult to believe that in so small a glen fifteen castles were to be

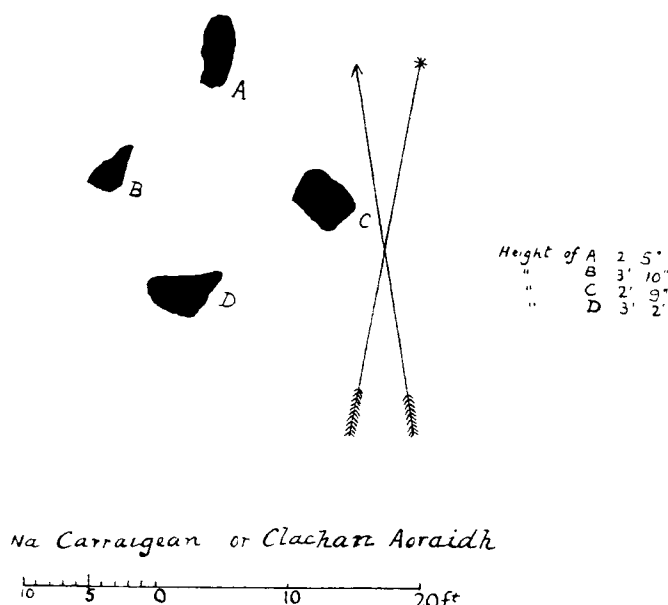


Fig. 2. Group of Standing Stones near Edintian Farm.

found at any time, and it is possible that there is here a confusion between the structures existing in Glen Fincastle alone and those in Glen Fincastle and Loch Tummel side. If the latter were included, the statement was probably correct when written, for I know of the remains of twelve in that district now, and have heard of one or two others now gone.

Beginning at the head of Glen Fincastle, the first object of interest is the four standing stones (fig. 2) situated about $1\frac{3}{4}$ mile west of Edintian farm, at an elevation of about 1300 feet. These stones are shown on the

¹ The writer gives *Fonn Chaisteal*, genitive plural: what I heard was *Fonn Chaisteil*, genitive singular.

six-inch O.S. map, and are named *Na Carraigeán*, "the rocks," but the name given to me by the people was *Na Clachan Aoraidh*, "the stones of worship." They stand about 10 feet apart, roughly in the form of a rectangle, and vary in height from 3 feet 10 inches to 2 feet 5 inches. They are somewhat squat in appearance. The plan of these, and the other plans which follow, I owe to the kindness of Mr John Mathieson of H.M. Ordnance Survey, who visited the district with me and surveyed a number of the antiquities.

Caisteal Achadh a' Chaisteil or *Achastle Fort*.—This fort (fig. 3) is

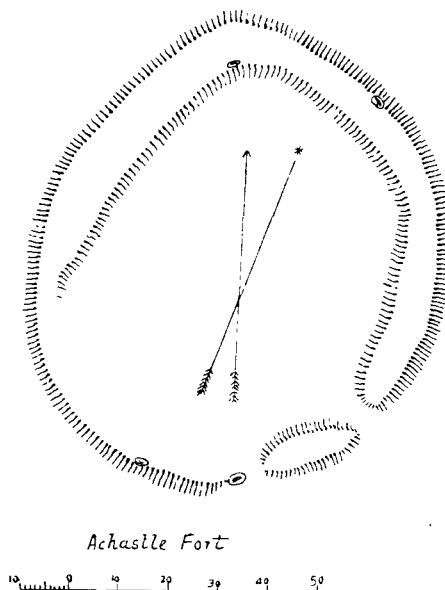


Fig. 3. Achastle Fort.

situated near the head of Glen Fincastle, on the side of a hill, near the top of a field, and about 300 yards N.W. of Achastle steading. It is about 1100 feet above sea-level. There is little to be seen except a grassy wall rising 18 inches to 2 feet above the level of the ground. The shape is oval, its longer diameter being 92 feet and its shorter diameter 80 feet to the outside of the wall. There are four stones to be seen, three on the outer edge of the wall and one on the inner edge. There are two openings at the S.E., but the structure is too dilapidated to say with certainty that either of them formed the original entrance. Unnoted on the O.S. maps.

Milton Fort.—This fort (fig. 4) is situated in a field about 200 yards west of Milton Lodge, and stands about 900 feet above sea-level. It is

about a mile from the one just described. The structure is much dilapidated, many of the larger stones having been used for building the adjacent stone walls. In shape it is nearly circular, with an outside diameter of 70 feet and an inner one of 45 feet. It was a comparatively small fort. Unnoted on O.S. map.

An Caisteal Dubh or *Black Castle* (fig. 5).—Occupies a commanding position on the spur of land projecting between the valley of the Tummel and Glen Fincastle, right behind Fincastle post office. It commands a view in all directions except to the west, where it is overshadowed by

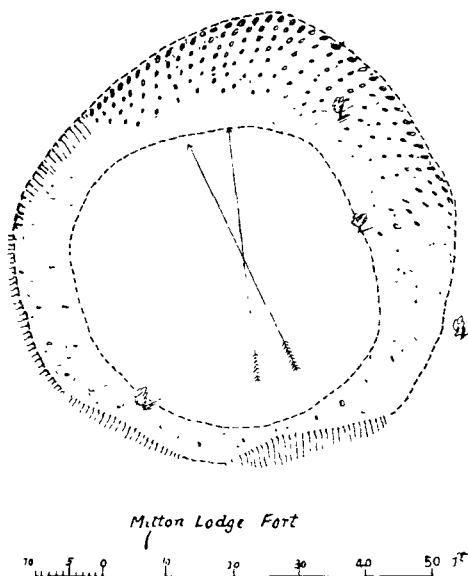


Fig. 4. Milton Fort.

Cnoc Chomhairle, "Council Hill," a significant name unnoted on the maps. The fort is built on a rocky top, and is of an oval shape: larger diameter 69 feet external and 49 feet internal; smaller diameter 57 feet external and 41 feet internal. The walls are 1 foot 6 inches to 2 feet 6 inches high. An old dyke runs up to it on the north-west corner. The opening of the door is visible on the south side. Marked *Castle* on O.S. maps.

Queen's View Fort (fig. 6).—Already described at p. 53 of former paper. It stands 830 feet above sea-level, and measures 78 feet outside and 59 feet inside, which agrees with my own rough measurement. One of the stones measures $4 \times 2 \times 2$ feet, or 16 cubic feet, which should weigh well over a ton. Others are nearly as big. Unnoted on O.S. map.

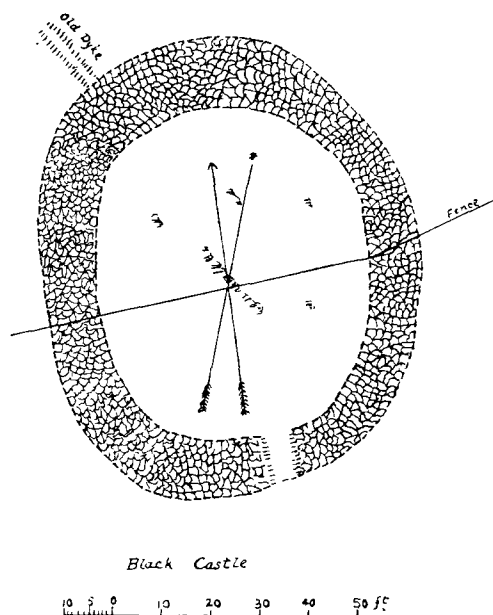


Fig. 5. Black Castle Fort.

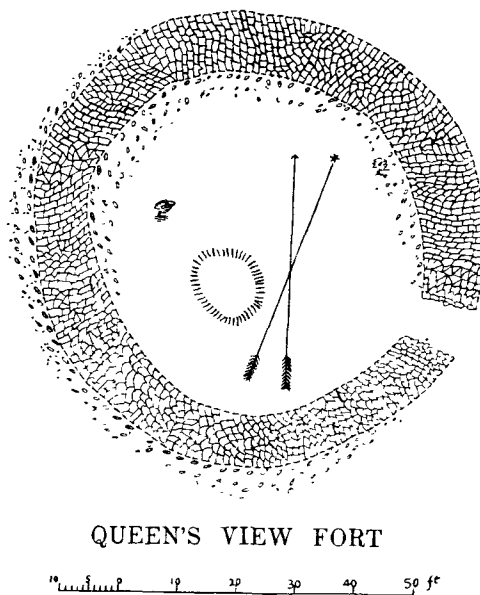


Fig. 6. Queen's View Fort.

Borenich Lower Fort (fig. 7).—Described on p. 52 of former paper. Its greatest outside diameter is 67 feet and its inside diameter 48 feet; its lesser diameters are 63 feet and 44 feet respectively, which again agrees with my rougher measurement. Unnoted on O.S. map.

Borenich Upper Fort (fig. 8).—Described on p. 47 of my former paper. It stands about 950 feet above sea-level. Three old dykes run up to its walls. Outer diameter 69 feet, inner 49 feet. Unnoted on O.S. map.

Hut Circle.—This is about 250 yards S.E. of the Borenich (upper) fort, and is oval-shaped, its greater diameters being 38 feet external and

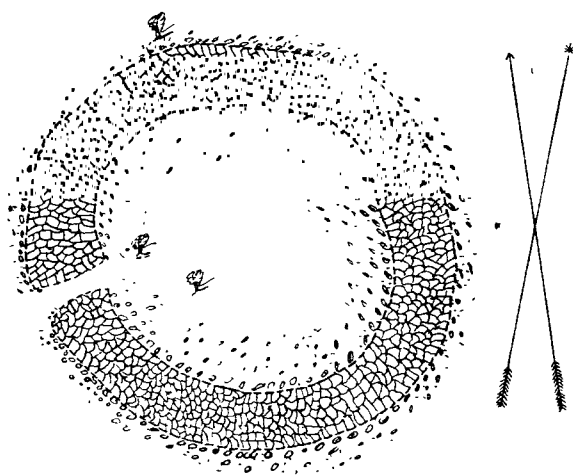


Fig. 7. Borenich Lower or East Fort.

31 feet internal, and its lesser diameters 32 feet and 27 feet respectively. The walls are in some parts about 2 feet high, but in others it is difficult to trace the outline on the ground.

Balnabodach Fort (fig. 9).—Stands on a rocky ridge in a cultivated field about 1100 feet above sea-level, N.W. of Balnabodach farmhouse and N.E. of Ballintuim farmhouse. It is referred to sometimes as *Caisteal Baile nam Bodach* and sometimes as *Caisteal Baile an Tuim*. It commands the whole of the Tummel valley from Loch Rannoch to the eastern part of Loch Tummel. The remains consist only of a grassy bank, with 17 stones—as shown in the plan—appearing on the outer edge of the wall, and 2 on the inner. It is circular, and measures 84 feet in diameter to the outer edge and 67 feet to the inner edge of

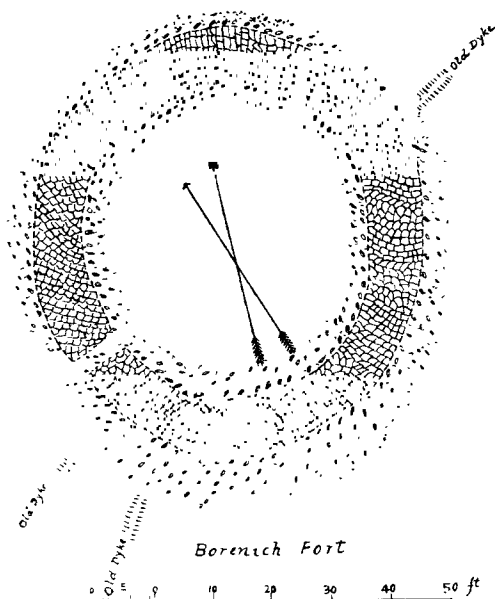


Fig. 8. Borenich Upper Fort.

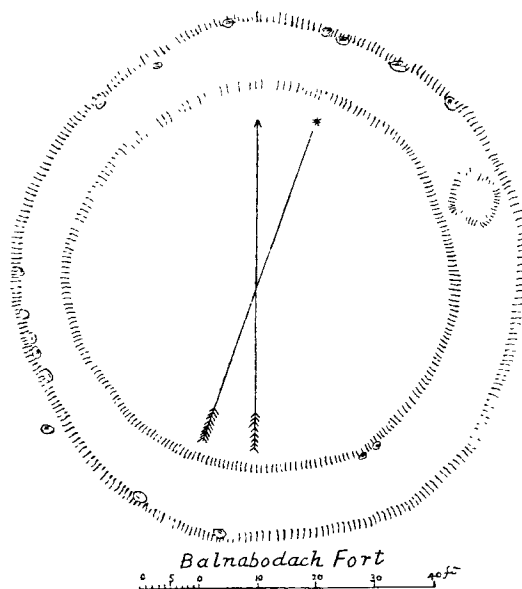


Fig. 9. Balnabodach Fort.

wall. An intelligent man told me that in his father's time a good deal of the wall was standing. Unnoted on O.S. map.

I was told of a "castle" on the high ground N.E. of Balnabodach, and found the place easily. There was, however, no "castle," but a large cairn rather irregular in shape, but on the whole roundish. It is about half a mile N.E. of Balnabodach, on a knoll on the moor called

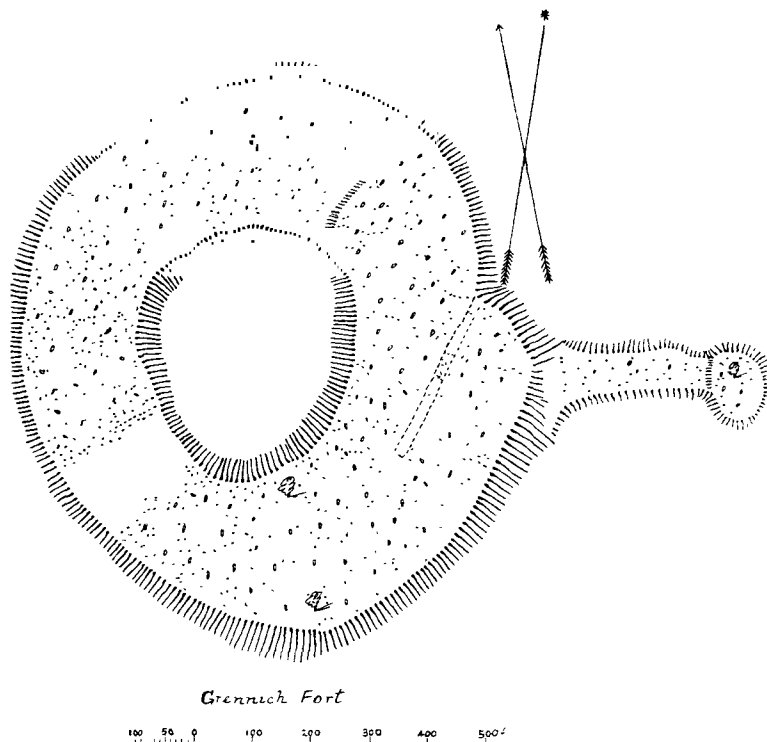


Fig. 10. Greenwich Fort.

Cnoc na Gaoithe, "windy hill." The cairn itself is named *An Carn Breac*, "the spotted cairn." Unnoted on O.S. map.

Greenich Fort.—This fort (fig. 10) is situated about a mile west of the last, in a cultivated field about 300 yards N.E. of Greenwich farmhouse, and about 1000 feet above sea-level.

The writer of the *Old Statistical Account* of the parish of Blair Atholl and Strowan says: "Here" (*i.e.* at Greenwich) "are the remains of a very extensive Druidical work: a large circular wall, either a castle, or the foundation of a very large cairn, with small cairns innumerable on the barren ground above it, which were probably

graves. About a mile to the northward of these is a large cairn that appears only to have been begun, the circumference being laid of great stones and a parcel of lesser ones thrown within it" (*O.S.A.*, ii. 479). The cairn referred to appears to be *An Carn Breac* above mentioned, though neither the description nor the situation quite fits.

The fort is in a dilapidated condition, as most of the large stones have been removed, and the enclosure itself has been made a dumping-ground for small stones gathered from off the adjacent fields. Its greatest diameter is about 95 feet. What appears to be an old dyke runs in to its eastern side. About 30 feet to the east are the remains of a small structure which may have been connected. Unnoted on the O.S. maps.

The above structures were all surveyed in course of a somewhat arduous day and a half. I may add that Mr Mathieson and myself closely examined also the rocky wooded promontory at the S.E. end of Loch Tummel, called in Gaelic *Dun Teamhalach*, "Tummel Fort," and written in English, incorrectly, Duntanlich. The place is one of considerable natural strength, being surrounded by water on three sides, and connected with the land by a neck about 100 yards wide (or less). We found, however, no traces of fortification, and concluded that the neck may have been defended by a palisade. For the remaining forts I have no plans to submit.

Foss A.—There are some remains of a fort about $\frac{1}{2}$ mile east of Kynachan farmhouse, among some copses on the flat outside the cultivated land, and a little to the N.E. of a farm-labourer's house. The structure is so dilapidated that it shows hardly any plan, and it might be mistaken for a casual collection of stones, were it not for the clear tradition of a fort having stood there. Unnoted on O.S. map.

Foss B.—A little more than a mile to the east of Foss Church, and about 300 yards to the south of the public road, there stood a fort of which considerable remains, speaking comparatively, still exist. It occupies an elevated site overlooking the extreme S.W. end of Loch Tummel, among some trees just above a cultivated field, and a little to the west of a small burn. It was of about 55 feet internal diameter. About 6 feet of the S.W. part of the wall remains, showing a fairly good face of masonry. The wall is said to have been much higher forty or fifty years ago, and the fort is, on the whole, perhaps the least dilapidated of the Loch Tummel group. Unnoted on O.S. map.

Drumnakyle.—The remains of another fort are said to be at Drumnakyle, less than $\frac{1}{2}$ mile in a straight line S.W. of Foss Church. I have not seen this ruin. Yet another is said to have stood near the shepherd's house at Braes of Foss, but I was unable to visit the site. The height of this latter one above sea-level would be about 1200 feet.

Neither is noted on O.S. map. I could find no traces of these structures on the south side of Loch Rannoch, but some may possibly exist between Kinloch Rannoch and Braes of Foss. I cannot speak for the north side of Loch Rannoch.

An Caisteal Dearg. — This fort stands on the right bank of the Tummel, opposite the mouth of Glen Fincastle. It is rather difficult to find, owing to woods, and I did not attempt to see it, but there is no doubt of its existence.

Passing from the Tummel basin, I now proceed to give some notes of similar structures in the neighbourhood of Dalmally, that pleasant fertile district at the eastern end of Loch Awe. The writer of the *New Statistical Account* of Glenurchy and Inishail notes that "on a height above the water of Teatle, on the farm of Duchoille, may be seen the ruins of an old fort or castle. Tradition does not indicate either the object or the period of its erection. It was built of dry stone and resembles those old ruins so frequent in the Western Isles, which are called Danish forts. Another, apparently of the same description, stood on the farm of Barchasttallain, a little to the westward of the inn of Dalmally. . . . The late Dr Donald Smith claimed for this ruin a very remote antiquity. He considered it one of the residences or castles of the Fingalians. The tradition of the country agrees in ascribing the same antiquity to it. On the farm of Castles stood another of these buildings. . . . Not a vestige of it now remains."

The last statement, as I am informed, is not quite correct, for there appear to be still some measurable remains of one, if not two, of the ancient forts which gave the farm its name of Castles.

Barr Chastulain. — The remains of this fort, though it is quite dilapidated, can still be traced with sufficient clearness to show that it belonged to the type under consideration. It stands on a ridge within about five minutes of Dalmally Hotel, as indicated in the *N.S.A.*, with crofters' houses immediately adjacent to it. Here the famous Macnab smiths and armourers had their workshop. The shape of the fort is rather oval than circular, with a short diameter over all of about 57 feet. Little remains of the wall, and the outer face is probably gone. Several people reported that formerly two forts had stood there, but I could see no trace of a second. A little to the south is a higher spur called *Barr nan Eirionnach*, "the Irishmen's Height" (or, as an aged man on the spot translated it, "Paddy's Point"). Lying by the wall there is flag nearly two feet long with a circular cup mark near one end, about 6 inches across and 4 inches deep, very symmetrical and tapering to a round point.

Duchoille Fort.—The fort of Duchoille (or Dychlie, as it is sometimes spelt) is on a knoll overlooking the left bank of the Teatle, below Duchoille farmhouse. It is quite close to the river, and about two miles from Dalmally. If the Teatle is low and fordable, the easiest way to the fort is by Duncan Macintyre's monument. One passes the monument on the left, by the road to Blarchaorruinn. About 250 yards beyond the monument the road bends to the left, and at this spot the fort comes in sight to the right beyond the Teatle, and one gets to it by striking across the moor and fording the river. The fort is rather under the usual size, and the wall is thinner than usual. On the same little ridge are the remains of several small structures of stone.

The Barr Chastulain and Duchoille Forts are noted by Dr Christison in his paper on the forts of Lorn (vol. xxiii. of *Proceedings*).

NOTE ON EXCAVATION OF CIRCULAR FORT NEAR BORENICH, LOCH TUMMEL-SIDE.

This piece of work was made possible by the help of the Council of the Society, who provided the necessary funds, and by the courtesy of the proprietor, G. F. Barbour, Esq., of Bonskeid, who gave permission to excavate and took much interest in the work. I was much indebted to Mr Hugh Mitchell, Pitlochry, for valuable practical assistance.

The fort selected for excavation was that marked above as Borenich Lower. It is situated about half a mile east of Borenich farmhouse, in an open glade in the birch wood, and about fifty yards to the south of the public road. The condition of the fort before excavation is shown by the photographs in my former paper. It contained a large quantity of stones fallen in from the north and east sides. The space comparatively clear of stones was covered with grass, bracken, and some birches. The aim in view was in the first place to determine the nature of the structure, the quality of the masonry, whether it possessed chambers, the type of door or doors. The second object was to recover any articles that might throw light on the state of civilisation of its occupants and perhaps help to assign an approximate date of occupation.

The excavation was begun on 25th August 1913, and the work lasted for a fortnight, three, and sometimes four, men being employed continuously under the supervision of Mr Brander, contractor, Pitlochry. The weather conditions, except for excessive heat, were most favourable. The whole of the interior was systematically cleared down to the natural gravel and often further, and all the soil moved was carefully riddled. The depth attained varied from a foot to eighteen inches below the cleared surface, when the hard gravel was met.

The nature of the masonry is shown by the illustration from a photograph. It was rude, and not to be compared to that of the brochs, and though the wall was 10 feet thick or so all round, it is difficult to suppose that it could have attained a height of over 10 or 15 feet. It contained no chambers: they could not have been constructed in such a wall. The stones used were seldom large, except in the foundation. I was at first inclined to think that the place had possessed a floor of beaten clay, but latterly I decided against that view. The structure was built on a slope, and the lower half had naturally a larger accumulation of debris, the lower layers of which had been apparently



Fig. 11. Masonry of the Inside Wall of the Fort.

trampled by usage to somewhat of the consistency of a floor over the hard gravel below. The entrance was at the west side, where the wall thickened from about 10 feet to nearly 13 feet. The entrance passage was in two sections, the outer narrow, the inner wider, the division being caused by two door checks, one at each side. The checks consisted of fairly heavy flat stones built in at right angles to the line of the passage. On the inside at either side of the entrance (fig. 12) were two massive upright stones. On the left-hand side of the outer section (looking outward) a heavy slab placed horizontally low down had fallen slightly out of position. Another was found lying in the passage. The outer section of the passage was about 3 feet wide at the level of the ground, but narrowed to 2 feet 7 inches at a height of

about 3 feet. In the inner section, the heavy stones placed at the inner end were 4 feet 9 inches apart at bottom and 4 feet 2 inches apart at top. Each of the door checks projected 8 inches. On the outside, slightly to the south of the entrance passage, and resting obliquely on stones fallen from the wall was a slab 5 feet long, 1 foot $2\frac{1}{2}$ inches thick, and 2 feet $4\frac{1}{2}$ inches wide, which had apparently served as a lintel. Its weight would be rather over a ton.

In respect of objects recovered, the results were disappointing. The first day produced the half of a quern found in course of clearing the surface, and quite near the top. Small shapeless pieces of iron were



Fig. 12. View of the Doorway of the Fort, looking outward.

found from time to time, one of which showed a minute trace of bronze. A well-formed bone bodkin and another implement of bone were found in the lower strata, also a stone spinning whorl. A number of circular stone discs were found, varying in diameter from $2\frac{1}{2}$ inches to 5 or 6 inches. Three fireplaces were found: one, by the side of the wall right opposite the door, had left distinct traces of smoke on the stones of the wall. Another was near the wall at the north-west side; near it the spinning whorl was found. The third was about the middle of the southern or lower half. It was backed by two stones set upright with their edges touching at an angle of about 45° : one of these was a regular flat oblong about 18 inches by 10 inches; the other was the broken half of a much worn quern. All the fireplaces, of course, contained charcoal, though not in any great quantity. Charcoal appeared also

over the whole of the floor, not in a continuous layer, but thinly; here and there a small pocket of it appeared. The charcoal showed up well against the sand and gravel of the floor. No pottery was found. In the lower (or southern) half especially we came across a number of shapely flat stones, which may have been used for some purpose. They were scarcely numerous enough to have formed a pavement, and they were in great disorder. It is unfortunate that no relics were found to which an approximate date can be assigned. The result, however, shows that the place was a fortified residence, inhabited by a people who used iron, who ground, and therefore grew, corn, and who span, and therefore possessed wool and sheep. The round discs of stone may have been used as coverings of jars, and, if so, the absence of pottery is the more remarkable. This evidence of agricultural and pastoral pursuits is borne out by the position of the structures. Every one of these which I examined is either on or near what is now cultivated land. As to choice of situation, it appears to have been often determined by the extent of view, but seldom or perhaps never by strength of position. Nearness to water seems to have been of no special consequence. In every case that I have seen, however, the site has been chosen with regard to some pass or passes.

The fort excavated was, perhaps, not a good example in respect of its masonry. Its door arrangements may be compared with those described by Dr Christison in his excavation of *Suidhe Cheanathaidh*, Kilchrenan (*Proceedings*, vol. xxv.). Indeed, I feel fairly certain that the fort on *Suidhe Cheanathaidh* is to be classed with those I have been describing, though in its diameter it resembles the broch. This latter fort was stated to myself on good authority to have been 16 feet high in living memory. My informant told Dr Christison that it had been 20 feet to 30 feet high in his father's time. No doubt the quality of the masonry may have varied, but I imagine that a wall 20 feet high of the sort of masonry seen at Borenich would have been rather a source of danger than a means of defence to the occupants.

In respect of distribution, these structures appear to be the typical ones in the district immediately south of the Grampians from the valley of the Tay to the Western Sea, and probably from Tay to Forth. North of the Grampians, at least from Caithness to Inverness-shire inclusive, they seem to be very rare. Mr A. O. Curle, however, in his *Report on the Ancient Monuments of Sutherland*, describes a structure apparently of the same type, near Achinduich, Invershin (p. 21). This "fortified enclosure" had a wall 10 feet thick, except at the entrance, which was 14 feet. The entrance passage is 3 feet wide, and faced west. Internal diameters measure 51 feet from north to south and 48 feet

from east to west. I am not aware of any sure case in Ross or Inverness. Dr Christison's paper on the Forts of Lorn, however, has some instances, in addition to those mentioned above, which appear similar. On p. 58 of vol. xvii. of the *Old Stat. Account* of the parish of Lecropt, written by the Rev. Dr James Robertson, minister of Callander, there is described a chain of forts, called *Kiers*, that run along the north side of the valley of Menteith. They appear to be similar to those described by me, but I have not seen them. *Kier* can hardly be dissociated from Welsh *caer*, a castle, and, on that supposition, would imply strong Welsh influence.

In my former paper I suggested that these structures were connected with the Verturiones or men of Fortrenn, the ancient province between Forth and Tay. Since it was written, additional experience has deepened the impression of a tribal origin. It is specially instructive to consider these midland structures alongside of the totally different class of fortified residence so typical of the counties of Midlothian, Haddington, and Peebles, that is, of the district of the ancient Guododin or Votadini. I venture to think that it might be worth while, given a sufficient induction, to consider first, the geographical distribution of the various types of fort, and, thereafter, how far that typical distribution corresponds with what is known of ancient tribal divisions.

II.

NOTES ON SOME ABERDEENSHIRE SCULPTURED STONES AND CROSSES. BY JAMES RITCHIE, F.E.I.S., CORR. MEM. S.A.SCOT.

The following notes contain information regarding Sculptured Stones at (1) Balhaggardy, (2) Banchory House, (3) Nether Corskie, (4) Park House, (5) Percylie, (6) Newbigging of Leslie, and (7) Rothiebrisan and Fyvie; and regarding Crosses at (1) Ellon, (2) Mill of Crathes, (3) Banchory Ternan, and (4) Dunecht; and lost Stones at (1) Leys of Dummies and (2) Turriff.

I. SCULPTURED STONES.

1. *Balhaggardy*.—The farm of Balhaggardy is situated nearly two miles from Inverurie, on the site of the battle of Harlaw, about half of the area of the battlefield being included in it. One of the ancestors of the present tenant, Mr Maitland, is said to have fought at the battle, and the farm has been occupied by the same family for a very long time. The village of Harlaw, which stood near the western end of the battlefield, has totally disappeared, though on its site stone whorls, such as were used on spinning-wheels, are occasionally turned up by the plough. Mr Collie, the proprietor of Harlaw House, has a fine collection of these and other objects of antiquity, many of which have been gathered on the battlefield in the immediate neighbourhood of his residence.

Though “Balhaggardy” means “the Priest’s Residence,” no trace of a chapel or graveyard is now to be seen in the neighbourhood, but a portion of a sculptured stone (fig. 1) is built into the wall at the back of the old farmhouse of East Balhaggardy. The stone has been cut by the builders in order to be used as a lintel over the back door of the house. It is of reddish granite, similar to that found on Bennachie, and measures 5 feet 8 inches long, and 10 inches broad. Its thickness is hidden in the depth of the wall. The figure incised on its surface is incomplete, but appears to be a portion of the double-disc or spectacle ornament with the Z-shaped line crossing it. The disc is formed of three concentric circles, the outer one of which measures 15 inches in diameter. The building has been carefully examined to discover if possible the remaining portion of the sculpturing, but without success. There are, however, several pieces of apparently the same kind of granite built into the walls near the sculptured stone, and very

possibly one of these may have the missing portion of the figure hidden on its inner side. This, of course, cannot be verified until the house is pulled down, and though it is no longer used as a dwelling, but only as a store-house, the walls are substantial, and may yet stand for many a year. The farms of Brandsbutt and Drummies, each of which has a sculptured stone, are both within sight of Balhaggardy, Brandsbutt being about a mile to the south-east, and Drummies nearly the same distance to the south-west.

2. *Banchory House*.—Banchory House stands on the south side of the Dee about one mile west from the Aberdeen tramway terminus at Bridge of Dee. Though it is actually within the county of Kincardine, it is so close to the city of Aberdeen that its sculptured stones may be conveniently included in the present paper. Banchory House is now



Fig. 1. Stone at Balhaggardy.

the residence of Sir David Stewart, but it formerly belonged to Mr Alexander Thomson, a noted antiquary of his day. In May 1858 he read a paper before the Society of Antiquaries of Scotland in which he described the sculptured stones which had been found at Dinnacair, an isolated rock close to the shore on the south side of Strathlethan Bay about halfway between Stonehaven and Dunnottar Castle. These stones he afterwards removed to his residence at Banchory House, and after his death they were lost sight of, so that, though they are described and figured in Dr Stuart's *Sculptured Stones of Scotland*, they were regarded as lost when *Early Christian Monuments* was published by the Society. Fortunately they have not really been lost. A survey of the antiquities of the valley of the Dee has for some time back been carried on for the Aberdeen Natural History and Antiquarian Society, and, while assisting in carrying out the survey, Miss A. M. Davidson, Beaconsfield Place, Aberdeen, ascertained that the stones are still at Banchory House. Four of them (fig. 2) are built into the inner side of the eastern wall of the fruit-garden, and were

during the summer almost completely hidden by a plum tree which was trained against the wall. The fifth stands in the middle of a plot in the flower-garden close to the south side of the house.

No. 1, the upper stone in the wall, has inscribed on it two figures: the fish symbol, and, just above its head, a triangle with a central dot. These are plainly figured in Dr Stuart's *Sculptured Stones*, but now, through the action of the weather, they are very faint, many of the details of the fish being indistinct and the triangle having almost

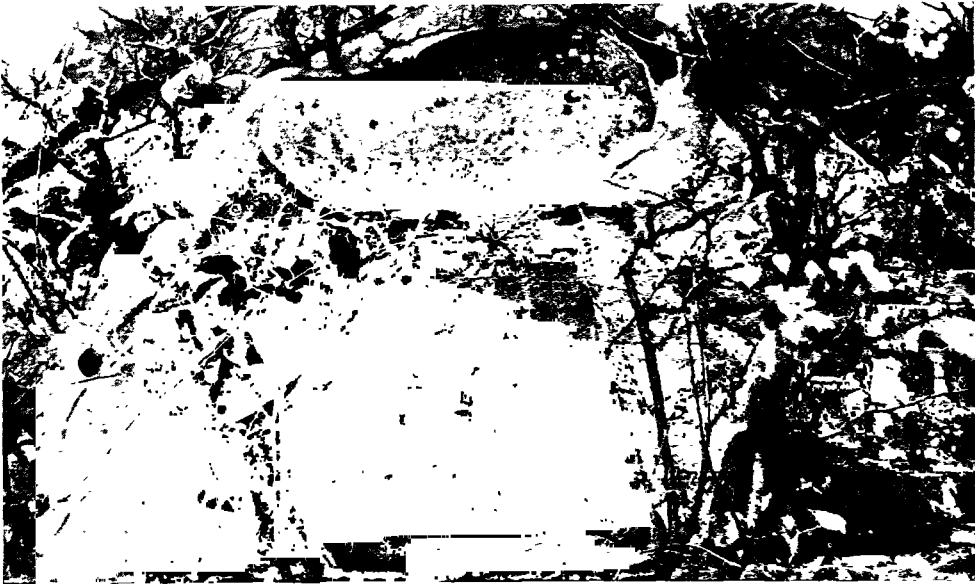


Fig. 2. Sculptured Stones built into the Garden Wall at Banchory House.

completely disappeared. Directly underneath is placed a slightly larger stone (No. 2) with the double-disc or spectacle symbol and the Z-shaped rod incised upon it. The incisions are deeply cut, and the figures on this stone are quite distinct. The Z-shaped rod is of a peculiar form, the ends being ornamented by elaborate carving not placed so symmetrically on each side as is usual. The lines joining the two discs also curve outwards instead of bending towards each other in the centre as in the ordinary form of the symbol. The whole figure appears to be rather carelessly drawn. No. 3 is placed on the left of the double-disc stone. It is a smaller stone and has incised on it a triangle with a crescent placed across it. The lines of the figure are carefully drawn, though the incisions are narrow and

shallow. The upper line of the crescent rests upon the apex of the triangle. No other figure exactly similar to this is known, though the Golspie ogham-inscribed stone, now in Dunrobin Museum, has on the back a crescent crossed by a triangle whose apex, however, points downwards, instead of upwards as in the Banchory House example. Stone No. 4 is at the right-hand side of the centre stone. It is a small reddish-coloured block on which is incised a small figure consisting of two rudely drawn circles touching each other. A hollow dot occupies the centre of each circle. The figure appears to be an elementary form of the double-disc symbol without the Z-shaped rod.



Fig. 3. Sculptured Stone (No. 5) at Banchory House.

These are all the stones which are built into the garden wall, but there is another stone (No. 5) close to the south side of the house. It has on the front the double-disc symbol crossed by the Z-shaped rod (fig. 3). The discs are each formed of two concentric circles with a hollow dot in the centre. The end of the rod in the figure given in Dr Stuart's *Sculptured Stones* has several elaborate flourishes on it. It is doubtful, however, if all these really belong to the rod. There are several marks on this part of the stone caused apparently by the tools of the masons who had cut down the stone for building purposes, and it is difficult to distinguish the original design from the newer lines. Dr Stuart does not seem to have observed the symbols on the back of this stone (fig. 4), probably because they are very faint and incomplete. They are not mentioned either in *Sculptured Stones* or in *Early Christian Monuments*. They are two in number and con-

sist of a portion of the cap or flower symbol and one side of the mirror. The greater parts of these symbols have been cut away, only an indistinct fragment of each remaining. There is also a small cup-mark on this side of the stone.

3. *Nether Corskie*.—At Nether Corskie near Waterton of Echt, about twelve miles west of Aberdeen, there are two standing stones which are said to be all that remain of a stone circle which formerly stood there. The western stone has two cup-marks on it: one on the south face, and the other on the west one. These stones have long been known, but only within the last few months has it been discovered



Fig. 4. Symbols on the Back of the Banchory Stone, No. 5.

that the cup-marked stone is also a symbol-bearing one. The origin of this discovery was as follows. The stones were for long thickly overgrown with lichen, and the symbols, being very slightly incised, were quite hidden by the growth. But some nine years ago the farmer on whose ground the stones stand chanced to have a horse which had contracted mange, an infectious skin disease. To keep it apart from the other animals on the farm, it was put into the standing-stones field, where it naturally used the stones as rubbing-posts. After it had recovered, the farmer whitewashed the stones fully halfway up with hot lime to destroy any traces of infection which might cling to them. The hot lime destroyed the lichen on the portion of the stones which had been painted with it, and was in course of time itself washed off by the winter rains. Last autumn Miss Davidson visited

the stones and noticed the symbols, and to her belongs the credit of having added a new symbol-bearing stone to our lists. How improbable it seems that the taking of mangle by a farmer's horse could have any effect in increasing our knowledge of antiquity! and



Fig. 5. Stone at Nether Corskie.

yet it has resulted in the discovery of a symbol-bearing monument dating from early Christian times.

The stone (fig. 5) is of grey granite with a very rough surface, the harder crystals of the stone standing prominently forward. The symbols appear to have been only slightly incised and have suffered much from exposure to the weather, so that they are now rather faint and require a strong side light to render them at all distinct. As the stone faces south-east, the carvings are best seen in strong sunlight

shortly before eight o'clock in the morning and about four in the afternoon. The symbols are two in number, the mirror and comb to the right and the mirror-case to the left, and both are placed side by side and about halfway up the southern face of the stone. The mirror is formed of two concentric circles half an inch apart, the inner one faint and in some parts incomplete. The outer one measures 11 inches in diameter, and the inner one 10 inches. The handle is of a common form, consisting of two circles joined by a double line, the upper circle being attached to the body of the mirror. The whole figure measures 17 inches from top to bottom. The comb is placed to the right of the body of the mirror and is formed of three lines joined together at the ends, the upper one being bent slightly upwards near the centre. The comb measures 6 inches long by 3 inches broad. The mirror-case is at the left side of the mirror. It is also formed of two circles, but they are not concentric, being further apart at the top than at the bottom, and the inner one is also imperfect. The outer circle is of the same size as the mirror, 11 inches in diameter, but the inner one is only $7\frac{1}{2}$ inches. The projecting part at the bottom of the figure is formed of single lines and is 6 inches wide at the base, the sides being slightly curved. The whole figure is 15 inches in length from top to bottom.

4. *Park House*.—In the grounds of Park House, some eleven miles west of Aberdeen and nearly two miles from Park Station on the Deeside Railway, there stands a sculptured stone (fig. 6) which has several times been somewhat incorrectly figured. It is placed on a pedestal, on the front of which a copy of the symbols has been so incorrectly carved as to bear only a general resemblance to the original. Neither are the figures in *Sculptured Stones*, vol. i., plate 12. and *Early Christian Monuments*, Part III. p. 180, quite satisfactory. This doubtless arises from the faint character of the incised lines and the shady place where the stone has been erected. It stands in a wood on the north side of one of the walks in the grounds of Park House and between the walk and the railway. Several attempts were made to photograph it, but these were rendered unsatisfactory by the shadow of a tree which fell on the surface of the stone and hid the carving just at the time of day when it should have been most clearly seen. It was only by returning to the place in mid-winter, when the trees were bare of leaves, that a satisfactory photograph was at last obtained. This shows that the upper symbol on the stone is not "the two-legged rectangle crossed by the Z-shaped rod," as suggested in *Early Christian Monuments*, but rather that symbol which has been variously taken to represent either a flower or an ornamented cap. The comb on the lower part

of the stone shows some traces of teeth which are not represented on either of the drawings to which reference has been made.

5. "*Percylieu*" Stone.—In vol. xlv. of the *Proceedings* for 1909-10, pp. 209-12, the wanderings of the Percylieu sculptured stone were described—from its original site at Hillhead of Clatt to Percylieu,



Fig. 6. Sculptured Stone at Park House.

thence to Cransmill at the head of the Kirkney Burn, and from that to Mytice near Gartly. But its wanderings were not then ended, and it is now my duty to chronicle another removal. The fact of its having been removed from its original site without the consent of the owner of the estate was brought to the notice of the present proprietor, Mr C. E. N. Leith Hay of Leith Hall. To prevent its ultimate loss, he laid claim to it, and after some delay his claim was

acknowledged, and he was enabled to remove it to his residence at Leith Hall, near Kennethmont Station on the Great North of Scotland Railway, where it now lies.

6. *Newbigging of Leslie*.—For many years there stood in the garden beside the farmhouse of Newbigging of Leslie a small sculptured stone (fig. 7) having incised on its face the figure of a hound or wolf and a mirror and comb along with a rectangular symbol which has been taken to represent a case for holding a book or a manuscript. This interesting stone is no longer to be found at Newbigging. On the

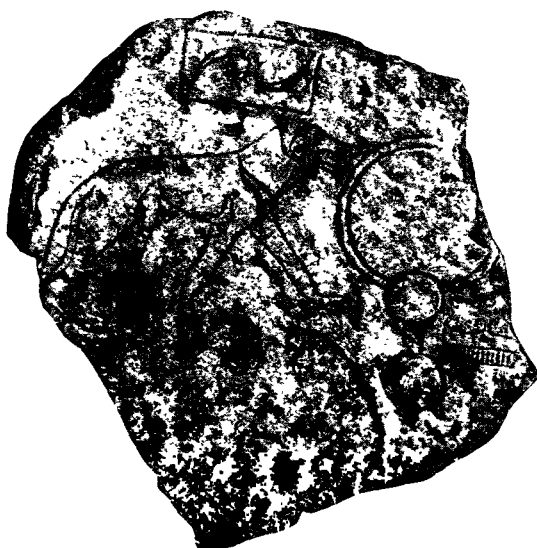


Fig. 7. Sculptured Stone, formerly at Newbigging of Leslie, now removed to Leith Hall.

removal of the last tenant, the proprietor, Mr Leith Hay, had it taken to Leith Hall, where it now stands at the side of one of the walks in the garden. These two stones, Percylieu and Newbigging, are now in safety, but they are exposed to the weather, which in time will doubtless damage, if not destroy, the symbols carved on them. Surely it is therefore permissible to hope that their wanderings may not yet be quite ended, but that they may have a final removal to some suitable museum, either the national one in Edinburgh or the local one in Aberdeen, where they would be carefully preserved, and be available for inspection by those interested in them.

7. *Rothiebrisdane and Fyvie*.—There formerly stood in the garden at Rothiebrisdane, near Fyvie, a sculptured stone which was originally

found covering a drain in the neighbourhood and was rescued from its lowly position by Mr Hay Chalmers, a well-known local antiquary. It

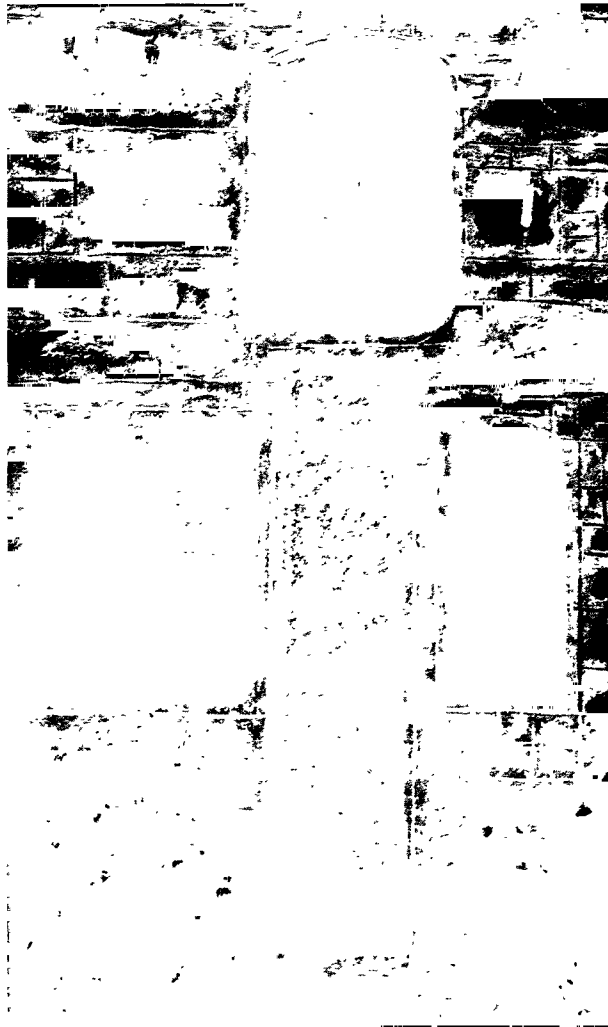


Fig. 8. Sculptured Stones built into the Wall of the New Gable of the Parish Church at Fyvie.

has on its face two symbols, the upper one being the horseshoe and the lower one a symbol consisting of three small circles within a larger one. If these be Christian symbols, as is generally believed, this latter one seems to suggest the Trinity.

Another sculptured stone formerly occupied a position in the front wall of what in former times was the schoolhouse in Fyvie, but which was latterly used as a shop. It had on the upper portion a part of the crescent symbol crossed by the V-shaped rod, and below this the long-jawed animal or "elephant" symbol with a mirror in front of its head. It is thus in construction somewhat similar to the Newbigging stone, the "elephant" taking the place of the hound or wolf and apparently looking into the mirror. This, however, may not be intended, but may simply arise from the symbols being placed together. Though these two stones are no longer to be found in their former places, they have not been removed from the district. When the parish church of Fyvie was enlarged a number of years ago the gable had to be rebuilt, and the two sculptured stones which were built into it had therefore to be removed.

One of these stones contained on the upper portion half of the double-disc or "spectacle" symbol, below which was an eagle with both head and tail broken off. The other stone was ornamented with triangular interlaced work within a square, and an oblong containing a somewhat irregularly drawn key pattern, and perhaps it may have originally formed part of the shaft of a cross.

When the new gable was erected, Dr Milne, the parish minister, seized the opportunity to gather together the sculptured stones of the parish and have them built into it (fig. 8). The oblong stone now stands in the centre, with the Rothiebrisdane stone above it, the eagle stone on the right, and the stone from the old schoolhouse on the left. While these stones are doubtless in a safer position than formerly, it cannot be said that their situation is yet altogether satisfactory. They are exposed to the weather, and, as ivy has been planted along the base of the gable, there is the danger that at some future time they may be overgrown and hidden. They should be placed under cover in some easily accessible museum, say at Edinburgh or Aberdeen.

II. CROSSES.

1. *Ellon*.—At the outside of the north-east window of the parish church of Ellon on the right-hand side just above the window-sill and close to the stair leading down to the cellars underneath the church, there is a carved stone (fig. 9). It is of reddish granite, and measures 30 inches in length, 12 inches in breadth, and 8 inches in thickness up to the woodwork of the window, which prevents the full thickness of the stone from being measured. It has been trimmed to fit its position in the window, and in so doing a considerable portion

of the design has been cut away. It is thus somewhat difficult to say exactly what it looked like when complete, but it seems to be a portion of a cross the arms of which were themselves crosslets.



Fig. 9. Sculptured Stone at Ellon.

2. *Mill of Crathes*.—In the walls of the farm-steading of Mill of Crathes, about half a mile west of Crathes railway station, two small crosses



Fig. 10. Sculptured Cross in Wall at Mill of Crathes.

have recently been discovered. No. 1 (fig. 10) is built into a low wall directly opposite the door of the poultry-house. The stone on which it is cut is a hard diorite (or “blue heathen,” as it is locally termed),

and measures 3 feet 1 inch long and 5 inches broad at one end, tapering to 4 inches at the other. The cross itself is an equal-armed one, drawn within a circle 6 inches in diameter, and the arms of the cross are formed by two diameters of the circle crossing each other at right angles. The area of the circle is thus divided into four equal portions, and in the centre of each there is a small circular dot or hollow, half an inch in diameter. The incised lines forming the cross and its enclosing circle are also half an inch in width. The cross has no shaft attached to it. In size and appearance it is not unlike the head of



Fig. 11. Stone with Cross built into the Wall of the Farm-steading at Mill of Crathes.

the cross on the Tofthills cup-marked stone described in vol. xlv. of the *Proceedings*, p. 212. It is also very similar in design to the cross on the pavement below the tower of the Parish Church of Monymusk, described and figured in vol. xlv. of the *Proceedings*, p. 348. The Monymusk Cross, however, is somewhat larger in size, and lacks the four rounded hollows which are present on the Mill of Crathes one. This cross is said to have originally stood near Cannieshill at the side of an old drove road leading down to a ford over the Dee, and about half a mile distant from its present site at Mill of Crathes. It is traditionally said to have been a "dead mark" or "death mark," and may thus have been originally erected to mark the spot where some traveller on the old drove road came to a sudden or violent end.

No. 2 (fig. 11) is built into the outside of the east wall of the farm-

steading close to the level of the ground. The stone is of grey granite, 14 inches long and 12 inches broad, and the cross occupies the full length and breadth of the stone. The arms of the cross are 5 inches wide, and the incised lines by which they are bounded are 1 inch wide. This stone, like many others, has unfortunately been trimmed for building purposes by the masons, so that the original size of the cross and whether or not it had a shaft cannot now be ascertained. Where it originally came from is not known, and as there is no old

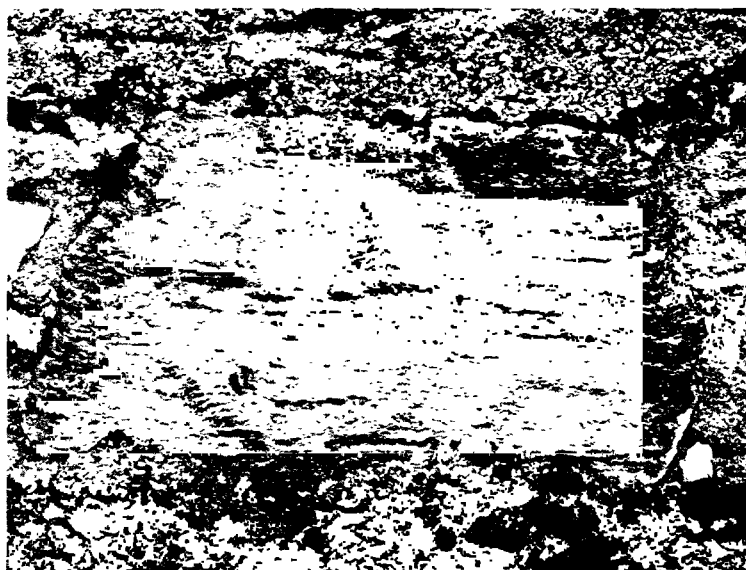


Fig. 12. Sculptured Cross at Banchory Ternan.

chapel or graveyard in the neighbourhood from which it is likely to have been taken, a probable suggestion is that it may have marked the solitary burial-place of someone who had been drowned in attempting to cross the neighbouring ford over the Dee.

3. *Banchory Ternan*.—In the north wall of the manse garden at Banchory Ternan, facing the Aberdeen turnpike road, there is a small stone on which is carved the head and a portion of the shaft of an ancient wheel cross (fig. 12). The stone is a small block of gneiss, measuring $14\frac{1}{2}$ inches long and 10 inches broad, and the cross has been formed by cutting away the stone surrounding it so as to leave the figure slightly raised. The stone has evidently been long exposed to the weather, and the outline of the cross is therefore somewhat

indistinct. It is thus rather difficult to find, but fortunately on the other side of the road directly opposite the cross there are two large stones built into the dyke, which thus serve to locate it. These large stones are traditionally reported to be the remains of a stone circle which formerly stood on the spot. They have more the appearance, however, of cist stones than of pillar stones, though of course a cist may have been connected with the circle. Another way of finding the cross is to measure a distance of 27 feet 3 inches westwards from the edge of the back door leading into the manse garden, at about 1 foot above the level of the footpath. This will lead to the centre of the cross. The stone on which it is carved is built into the wall in such a way that the cross lies on its side with the head pointing to the east. The arms of the cross are $1\frac{1}{2}$ inches in breadth except at the points of intersection, where they are narrowed by semicircular hollows $1\frac{1}{4}$ inches in diameter. The circle surrounding the cross is also $1\frac{1}{2}$ inches in width, and its diameter is 10 inches, so that it just touches the edges of the stone. The shaft is 2 inches broad, but only $4\frac{1}{2}$ inches of its length are left. My attention was first drawn to this cross and to those at Mill of Crathes by Mr A. Macdonald, M.A., Crossroads, Durris, who takes a great and intelligent interest in antiquarian matters, and whose knowledge of the local antiquities is extensive and accurate. It is doubtless this cross that is referred to by Mr Jervise in his *Epitaphs and Inscriptions*, vol. i. p. 6, as "the fragment of a coffin slab which exhibits the top of a wheel cross built into a dyke near the manse" (of Banchory Ternan).

4. *Dunecht*.—Dunecht House stands fully twelve miles west of Aberdeen. To the west of it about a mile distant there rises a cone-shaped hill known as the Barmekyn of Echt, on the top of which is an ancient fort defended by five ramparts which surround the hill. It is one of the most interesting hill forts in the district, and would be well worth proper investigation, which it is to be hoped it will get at no distant date. About eighty years ago, when some of the ground on the slope of the hill was being trenched, a carved stone was found which was afterwards built into a dyke on the farm of Upper Mains of Echt. There it remained for about a quarter of a century, when it was taken out of the dyke and removed to Dunecht House. The estate changed hands more than once, and the stone (fig. 13) was lost sight of for a time, but has now been recovered. At present it lies, almost hidden, flat on the ground under a beech tree to the north-west of the lawn-tennis court, which is a little to the south and directly in front of Dunecht House. It is of grey granite, somewhat irregular in shape, and measures 3 feet 2 inches at greatest length, and 2 feet 3 inches at

greatest breadth. Inscribed on its surface is a small cross with slightly expanded ends, surrounded by a circle 1 foot 10 inches in diameter, the incised line of which it is formed being $1\frac{1}{2}$ inches wide and 1 inch deep. The cross within the circle is 7 inches long and $6\frac{1}{2}$ inches broad, formed of incised lines $\frac{3}{4}$ inch wide and about half an inch deep. The cross itself is in form very like that in the churchyard of Monymusk (figured on the upper half of p. 348 of vol. xlv. of the *Proceedings*), which, however, has no circle surrounding it. A drawing of the Dunecht stone appears in *Sculptured Stones*, but it had apparently been lost when *Early Christian Monuments* was published, for it is not figured in that work, which makes only a slight reference to it.



Fig. 13. Sculptured Stone at Dunecht.

On the east side of Upper Mains, near which the stone was originally found, lies the land of Meanecht or Monecht, formerly called Monks' Echt, which in the early half of the thirteenth century came into the possession of the Abbey of Scone. This in all likelihood accounts for the presence of the Cross stone in the neighbourhood.

III. SCULPTURED STONES NOW LOST.

1. *Leys of Dummies*.—One would naturally suppose that after the diligent search for sculptured stones that has been going on for many years and the large number that have been discovered, there would be very few unfound. This is probably the case, and those that are still unknown are more likely to be small fragments than large stones. One lost stone will be found some day at Leys of Dummies, a farm about two miles south-east of Huntly on the road leading to Inch

through the Glens of Foudland. A fragment of a sculptured stone from this place is now preserved in the Museum of Antiquities, Edinburgh; the other portion lies buried somewhere in the field behind the farm-steading, where the stone originally stood. But the late Mr George Smith, the farmer in whose time the stones were removed, told me that another stone with carving on it was used as a foundation stone in the building towards the west of the steading. Unfortunately he was unable to describe the carving, and it is now completely hidden, but the recording of its burial here may perhaps at some future time, when the steading is again rebuilt, lead to its recovery.

2. *Turriff*.—A small stone containing a portion of the crescent with V-shaped rod is built into the outside of the wall at the manse garden of Turriff. It is figured and described on p. 187 of *Early Christian Monuments*. But another inscribed stone is said to lie under one of the piers of the bridge over the burn between the town of Turriff and the railway station. There was a faint tradition that a large pillar stone with an inscription on its face had been removed from its site on a neighbouring estate and utilised in the building of the earlier bridge. This seems to have been forgotten when the bridge was being rebuilt some years ago, for no one made search for it. The workmen, however, noticed the stone, but unfortunately did not draw the attention of anyone interested in such matters to their discovery until the building was too far advanced to allow of anything being done for its inspection or recovery.

It seems to be abundantly clear from the vicissitudes to which many of the stones mentioned in this paper have been subjected, that there is a real danger of some of them going astray and becoming lost—a fate which has overtaken many others. And even at the best they are exposed to the weather and the inevitable decay which that causes. It seems a pity that this should be so, and that monuments, many of which are peculiar to Scotland, should not be better looked after and preserved as a precious heritage. But public interest in these monuments is gradually extending, and the Commission on Ancient Monuments in Scotland, at present sitting, will doubtless be able to do something to preserve them intact for posterity.

III.

REPORT ON THE PARTIAL EXCAVATION OF DUN BREAC, SKIPNESS.

BY ANGUS GRAHAM, F.S.A.Scot.

The site of this fort is behind the village of Skipness, about half a mile due north of the west end of Skipness Bay. It can be found on the 6-inch ordnance map, but it is not marked on the map in Dr Christison's *Early Fortifications in Scotland*. The fort was built on a mound, on the left side and near the top of a deep ravine, through which the Skipness Burn runs before it turns into the village. The mound is thus bounded on the SW. side by a precipice, which falls 95 feet into the burn, and on the others by a more or less crescent-shaped hollow, the middle of which divides it from the hill-side on the NE., while the horns fall steeply to the burn at points above and below the precipice. The sides of the ravine below the fort are precipitous and rocky.

As a consequence of its position the fort would probably have been more useful as a place of refuge than for any strategic purpose. It does not command the shore, as the mediæval castle does, nor is it near any road or track. But it is so placed as to obtain a view of the whole of Kilbrennan Sound, and of a great part of the Sound of Bute; it would also have been difficult for strangers to find. It resembles nearly all the other forts of the district in the insufficiency of its water-supply; for although it overhangs the burn, to carry water up such a difficult slope in the face of any opposition, would have been impossible.

No traditions about the fort exist in the place except that smugglers are said to have kept a look-out there.

Before the excavation began, the fort appeared simply as a mound with a flat top and sides covered with tumbled stones. No part of the wall is standing above the level of the top. The whole mound is overgrown with trees, and a path that is certainly modern in its present form, leads up the NE. side. The shape of the top, as may be seen from the plan (fig. 1), is a rough circle from which a segment is missing on the SW. The length from N. to S. is 58 feet, and the greatest breadth from E. to W. is 56 feet. The fort thus comes into Dr Christison's "very small" class. There is a fall of 5 feet from the highest to the lowest point of the flat top.

The work done on the fort has consisted of clearing the tumbled stones away from what remains of the walls, and of excavating part of the interior.

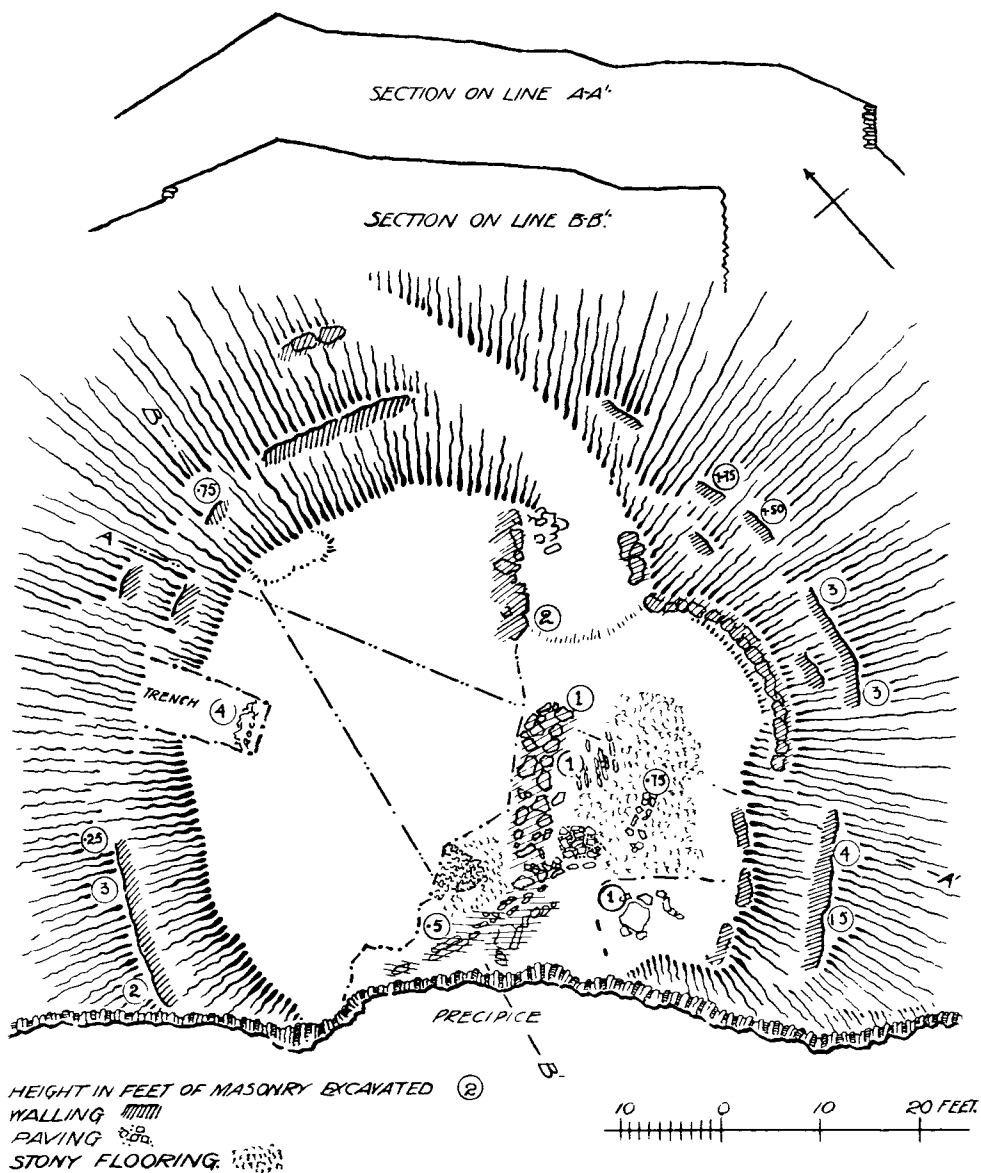


Fig. 1. Plan and Sections of the Fort of Dun Breac, Skipness.

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The Wall.—As has been said already, the upper part of the wall has quite disappeared; but stone-work remains below on the faces of the mound, and from this it is possible to form some idea of the position and size of the wall. Yet even what remains has been so much damaged by the roots of the trees, and by the slipping of the stones themselves, that there are only a few pieces of masonry left sufficiently complete to be safely taken as evidence. These are indicated on the plan (fig. 1). The best of them is near the precipice on the SE. face. The most probable conclusion that can be drawn from these pieces of masonry is that the slopes of the mound were faced with built stones at least to the level of the top of the hollow on the NE. side, and perhaps lower in places on the SE.; and that a wall rose from this facing, without the interruption of a terrace, at a level about 10 feet below the S. corner of the plateau. It will be seen from the plan that pieces of building form a fairly connected line round the mound, starting at this level and not varying very abruptly, though they are actually higher on the NE. The thickness of this wall can be estimated from the extent of the inhabited area on the top of the mound. Excavation shows that a floor (which will be alluded to later) extends, in this SE. part, to the very edge of the plateau, where the slope of tumbled stone begins. The inside face of the wall therefore cannot have been farther in than the present edge of the plateau; and the stones at the edge probably belong to it, though no sign of it can be made out. This would give the wall a thickness, in this part, of about 10 feet, or less, if batter is to be taken into account.

This view is supported by the results of cutting a trench into the wall on the N. face of the mound. This trench, which is marked on the plan, was driven in for 12 feet on a level 4 feet below the top. There were no facing-stones left at this place, but the trench was begun on what seemed to be a line between two existing pieces of masonry. The cutting was at first through masonry, and then rock was found at the bottom of the trench, on which the inner foundations of the wall seemed to be resting. The trench was then carried on above the rock, until it came through the masonry to earth, in which there was a stratum containing charcoal and broken bone. The horizontal distance from the beginning of the trench to the inside of the wall in this place is 10 feet.

This wall is not well built. Although it probably had a good face, inside it is composed of large stones packed with small ones, in such a way that the whole is not all firmly bound together. There are no bond-stones lying transversely in the wall; and in cutting the trench it was possible to pull out the stones without disturbing what

was left on one side and the other. In view of this fact, it is necessary to be cautious in holding that any small piece of fairly regular masonry must have been part of an outside face; the outer part of such a loose wall could easily slip away and leave some of the large stones of the inside in a deceptive position. There were no signs of any vitrification in the wall.

The Entrance.—At the top of the path which leads up the mound, there is a gap in the stonework that runs round the edge of the plateau. It is about 8 feet broad, and on the N. side of it there is a line of masonry 2 feet high, which forms a step to the higher level of the plateau. An entrance like this would not be expected in any other fort, but the path that leads to it was certainly brought to its present form, if not built entirely, by a former proprietor of the place, who used also to keep a flagstaff on the mound. There is consequently a strong probability that the present entrance was made, or any earlier one that existed at the place was tampered with, at that time. A large tree that stands in the entrance has prevented any search for a threshold.

This is not a likely place for an original entrance, as it is at the top of the shortest and easiest ascent from the hollow behind: to judge from other forts, it would more probably have been at a difficult place and near the precipice. Moreover, the wall is so ruinous that there may well have been such an entrance in another place, though no traces of it remain.

The Interior.—Excavation has been confined to the S. half of the plateau: the greater part of this has been cleared, and the rest has been investigated by means of small pits. It will be best to explain the results by reference to the plan.

There is firstly a line of stonework, 1 foot high and 18 feet long, that lies to the S. of the centre of the plateau and looks like the lowest course of an internal division-wall. Another row of stones, but in this case standing on their edges, runs up to this from the NW., crosses it, and continues along the side of the paved area. It is difficult to find any explanation of these stones that stand on edge; but it is possible that they may have been intended to keep an earthen floor in place.

The paving to the S. of the masonry is made of thin split pieces of the local stone eked out with large pebbles. When first uncovered it was blackened with fire, and there were small pieces of bone and charcoal in the cracks. Near the edge of it there is a small square hole contained by four flat pieces of stone standing on end. It is $4\frac{1}{2}$ inches across, and was full of blackened earth.

In the S. corner there is another piece of flooring, but at a level

1 foot lower than the paved area. In this floor there are several large flagstones, irregularly placed; and the soil upon and between these was very much blackened and contained a great many chips of bone. Excavation came to an end here for lack of labour and expert help, so that the relation between this floor and the other paving could not be determined. However, a floor of earth and stones, on the same level as the paved area, lay over this flagged floor, and was destroyed in uncovering it, so there is some reason to think that these levels may represent two different periods of habitation. This earthen floor extends over the whole of the rest of the S. and E. parts, as far as excavation has gone. The earth is discoloured with charcoal everywhere, and is full of smooth rounded stones, either whole or split, many of which show traces of fire. There are also some larger stones, here and there, standing on their edges. The rock that comes up beside the paved area was covered with a very hard and stony piece of this flooring.

In the E. corner some small pits were sunk; and these showed that a layer of blackened earth extends to the edge of the plateau, where the stonework of the wall begins. There were chips of stone and pebbles, also in these pits at the levels of the blackened earth; so no doubt the floor is the same as that which was uncovered near-by. These pieces of flooring in the pits appear to be at two different levels; but this cannot be made out with certainty, as the ground slopes slightly.

Another inhabited floor lies inside the row of stones on edge. As far as excavation has gone, it has shown that there was here a floor of earth mixed with stones, lying on the natural sandy clay. Some of the stones are large, and are fixed more or less upright; the whole stratum is full of charcoal, and it was from this that two relics came which will be discussed later. The top of this stratum is 10 inches below the surface, but the thickness of it is difficult to determine, as some of it has been dug away. One solidly-made piece, however, seems to be at least 14 inches thick. This floor is no doubt the same as that which shows in the trench on the N. side. There it is also about 10 inches below the surface, but a depth of 8 inches brings it down to the rock. The edge of the higher level, to the right of the entrance, was also investigated; but this part seemed to be choked under the turf with broken stone, probably fallen from the wall. Signs of blackening were here also observed in the soil among the debris.

The Relics.—Very few relics have been found in this excavation. It is possible that such a convenient precipice tempted the inhabitants to throw away useless things, which would otherwise have been trodden into the floor. No metal has been found, though we discovered a small

piece of iron-slag; and all the bone recovered was in very small fragments. The only stone objects that are of any interest are two oval pebbles of quartzite with longitudinal grooves in their flat sides. These objects are believed to have been used with a pointed object of iron as strike-lights, and are found in Scotland (chiefly in the North), in Scandinavia, and in some parts of Germany and France. A number have been found in brochs, and they are said to date from the early centuries of the Christian era. These pebbles therefore support the piece of slag in indicating an Iron Age date for the fort.

Another curious stone object was found below the level of the floor, or rather buried in the floor, 5 feet from the edge of the plateau, at about the middle of the SE. side. This was a block of stone, of a roughly circular shape and irregular thickness, in the upper face of which a small round hollow had been ground. The hollow is 2 inches across and one-third of an inch deep, and the surface in which it is sunk is naturally somewhat concave: so that the stone may perhaps have been used for some kind of pounding or grinding. When it was found, it was blackened like the earth in which it was lying.

I wish to take this opportunity of thanking all those who have been so kind as to help in the excavation.

MONDAY, 11th January 1915.

THE HON. JOHN ABERCROMBY, LL.D., President.
in the Chair.

A Ballot having been taken, the following were duly elected :—

Corresponding Members.

MURDO MORRISON, Bragor, Lewis.
JOHN MATHIESON, Ordnance Survey Office, 42 East Claremont Street.

Fellows.

REV. W. T. LYON, Lanark.
JAMES RONALDSON LYELL, Bantuscal, 30 Blacket Place.
REV. D. G. MANUEL, Manse of Mertoun, St Boswells.

There was exhibited :—

By CHARLES E. WHITELAW, F.S.A. Scot.

A dag, with snaphaunce lock and walnut stock, signed and dated R.M. 1625. (See the subsequent communication by Mr Whitelaw.)

The following Donations were announced :—

By JOHN FLEMING, F.S.A. Scot.

A Collection of Charters and other legal documents, thirty-nine in number, mostly of the sixteenth century, and relating to the town of Perth.

By J. S. FLEMING, F.S.A. Scot., the Author.
The Town-Wall Fortifications of Ireland.

By HIS MAJESTY'S GOVERNMENT.
Calendar of Close Rolls. Richard II., 1377-1381.

By LOUDON MACQUEEN DOUGLAS, F.S.A. Scot., the Author.
The Kilt : a Manual of Scottish National Dress.

The following Communications were read :—

I.

NOTES ON DUN AN IARDHARD, A BROCH NEAR DUNVEGAN
EXCAVATED BY COUNTESS VINCENT BAILLET DE LATOUR.
UIGINISH LODGE, SKYE. BY FRED. T. MACLEOD, F.S.A. Scot.

In presenting these Notes of Countess Latour's work in connection with Dun an Iardhard, an interesting broch in the Island of Skye, I desire to say that my connection with the matter began only after the excavation work had been completed, and that my function accordingly is merely that of recorder. Some idea of the extent of the work can be formed from the fact that over one hundred full working days were occupied, involving the conveyance of men and necessary implements a distance of two miles across Loch Dunvegan. While the entire excavation was carried out and personally superintended by Countess Latour, she desires to place on record her appreciation of the work done on her behalf by her manager, Donald Ferguson, and his nephews, Angus and Neil Ferguson. She also desires to express her thanks to MacLeod of MacLeod, upon whose estate the broch is situated, for permission to work it out, and to Mr John Mackenzie, F.S.A. Scot., MacLeod's factor, who kindly surveyed the building and prepared the accompanying plan and sketch of the entrance.

Iardhard, upon which the "Dun" is situated, while, strictly speaking, a peninsula, is practically an island about two miles to the north-west of Dunvegan Castle. The English equivalent of the word "Iardhard" is an exposed or windy headland. Differing from many of the "Duns" in Skye, which are placed on eminences a considerable height above sea-level, this dun is built on a slight rise not more than 20 feet above the lowest level of the adjacent ground. This undoubted weakness of position is counteracted by the existence of several natural mounds which formed a protection from sudden invasion. In addition, there are distinct evidences of artificial outworks which are not uncommon features of the Broch type of structure.

The removal of the fallen masonry with which the whole interior was filled, owing to the great size and weight of individual stones, was a slow and dangerous piece of work.

Fig. 1 is the ground plan, with (2) a sketch of the entrance. The scale of the plan is $\frac{1}{8}$ of an inch to a foot.

The main entrance, which enters from the west, is flanked on both sides by projecting masonry of the nature of a bastion, extending downwards to a point about 4 feet below the level of the main entrance.

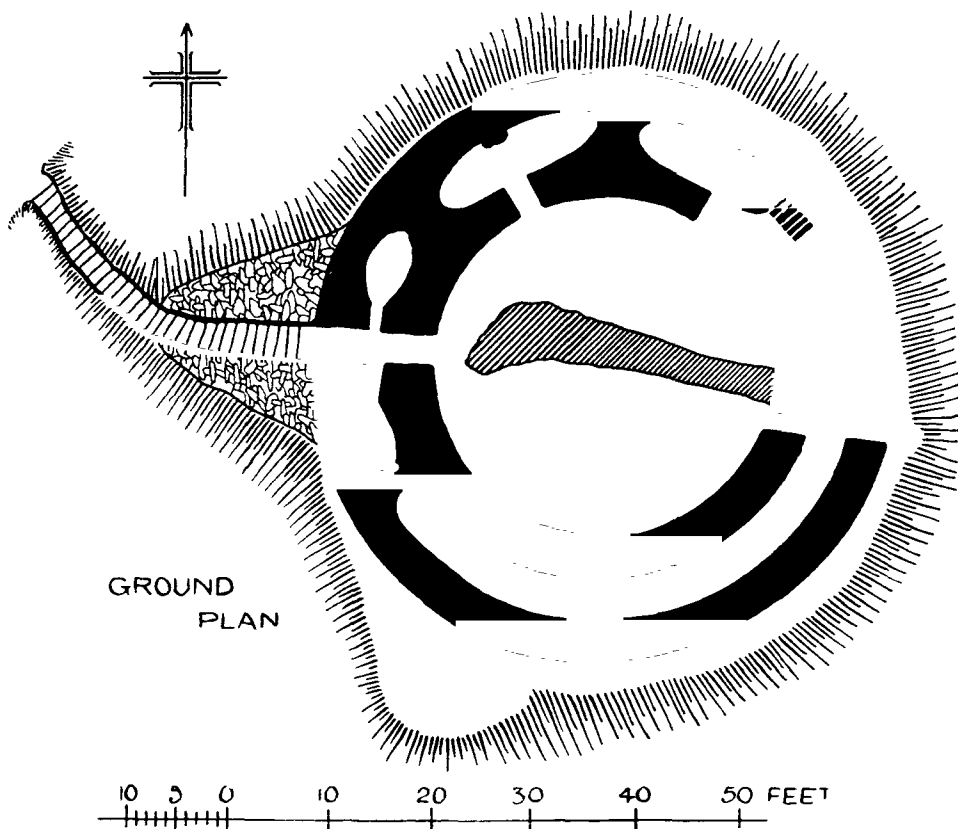
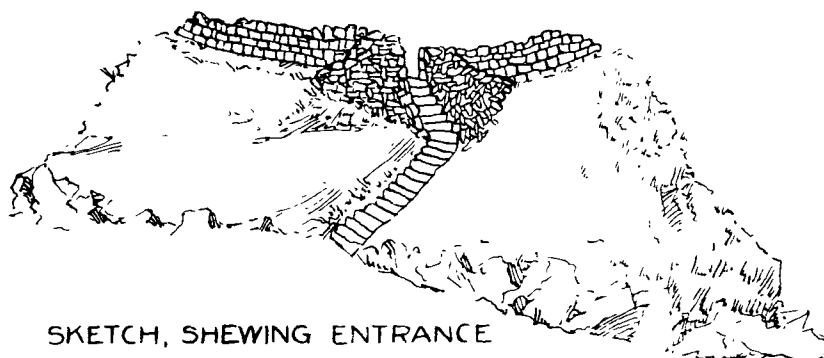


Fig. 1. Ground Plan, and (2) Sketch showing Entrance of Dun Iardhard, a Broch near Dunvegan.

Measured horizontally, this structure is 16 feet from east to west, and 22 feet 6 inches at its widest part, tapering to a width of 3 feet 3 inches. A series of roughly formed steps leads from the main entrance, which is 24·83 feet above the level of the ground to the south, passing downwards through the bastion-like structure, which ends at a level of 20·88 feet, and thence to their termination at a point 10·80 feet above the said level.

The outer circumference of the wall is about 174 feet; the inner circumference, 99 feet; the diameter of the outer circumference, 55 feet; and the diameter of the inner circumference, 31 feet. The highest part of the building, which is the top of the north wall, is 28·63 feet from the level of the ground on the exterior and to the south; from the lowest of the series of steps to the top of the north wall, 17·83 feet; from the entrance to the bastion to the same point, 7·75 feet; and from the level of the main entrance to the same point, 3·80 feet. The average thickness of the wall is about 12 feet.

In describing the architecture and general features of the building, I propose to start from the main entrance on the west and then to deal in their order with the north-west, north, north-east, east, south-east, south, and south-west sections respectively. In so proceeding, it must not be taken that I am following the order of the actual working. The general principle upon which Countess Latour proceeded was first to locate an exposed section of the inner face of the wall. Having obtained that, the work proceeded as far as possible in a particular direction along that face, unless and until some difficulty arose necessitating an alteration of direction. All debris was carefully removed until the full height of the wall was revealed. All entrances leading to chambers in the wall, and the chambers themselves, were dealt with as they were encountered. Roughly, a full day's work consisted in the clearing out of a section 2 or 3 yards long by about 1 yard wide, and examining that section for objects of interest before proceeding with further excavation. The result was tidy work from start to finish. The primary purpose was to disclose, and as far as possible preserve, what still remained *in situ* of the original construction; the second, to recover anything of archaeological interest associated with the building and its occupants. So rigidly was this order of precedence adhered to, that if a stone individually of interest formed a necessary support to the masonry of the wall it was left in position.

The main entrance through the wall is 12 feet in length, 3 feet 1 inch in width at its outer or western end, and 2 feet 9 inches in width at its inner or eastern end. Although the plan does not show it, there

are the usual rebates on either side between the exterior and the two guard chambers. Halfway through this entrance on both sides there are two passage-ways leading to these guard chambers. The passage leading to the north guard chamber measures 3 feet by 1 foot 4 inches, the dimensions of the chamber itself being 7 feet by 4 feet 3 inches. The corresponding measurements applicable to the south guard chamber and its entrance are: length, 3 feet 9 inches, and width, 1 foot 6 inches, and 6 feet by 4 feet 3 inches. The north chamber is the better preserved of the two, the lintel above the entrance being still *in situ*. Portions also of the roof are still in position, showing the usual system of overlapping stones. There is, however, one feature present in the south chamber which is absent in the other, viz., a recess at the extreme south point, $2\frac{1}{2}$ feet high, 1 foot 6 inches wide, and $1\frac{1}{2}$ feet deep (southwards).

To the left or north of the main entrance, measuring along the inner face of the wall, at a distance of 13 feet 9 inches, is the entrance to another chamber much greater in area than either of the two just mentioned. The entrance, which is roofed by a large slab, is about 3 feet high, 3 feet 9 inches long, and 2 feet wide. The chamber itself measures 17 feet 3 inches by 4 feet 6 inches. On the side opposite the entrance, and immediately facing it, the wall is buttressed, or projected, inwards, 2 feet 3 inches by 9 inches. There is also a recess 1 foot square by $2\frac{1}{2}$ feet deep in the wall at the north-west corner of the chamber. This recess, at the time when the plan was prepared, was concealed from view. Fig. 3 shows the entrance to this chamber.

Returning to the inner face of the wall, at a distance of 14 feet 6 inches from the last-mentioned entrance, the wall is again pierced by a passage-way, unroofed, 3 feet 6 inches in length and 2 feet 6 inches in breadth. This passage leads to another chamber, 14 feet 3 inches by 4 feet. This chamber gives access to the staircase leading to the first gallery. Six steps of the stair remain in position. Fig. 4 shows the entrance to the chamber, and fig. 5 shows what remains of the staircase.

When working round this eastern section of the wall an unexpected halt was caused by the obtrusion, practically at right angles, of another wall totally different in character from the main wall. So ragged was its formation that it was at first believed to be an immense mass of fallen stones, but after investigation it proved to be a wall varying from 3 to 5 feet in thickness and of varying heights, extending practically across the court to within a foot or two of the main entrance. The ill-formed character of this secondary wall, and its relation to the main wall, are shown in fig. 6.

On returning once more to the inner face of the main wall, further



Fig. 1. Entrance to the Chamber leading to the Stair.



Fig. 3. Entrance to Chamber with Buttress.

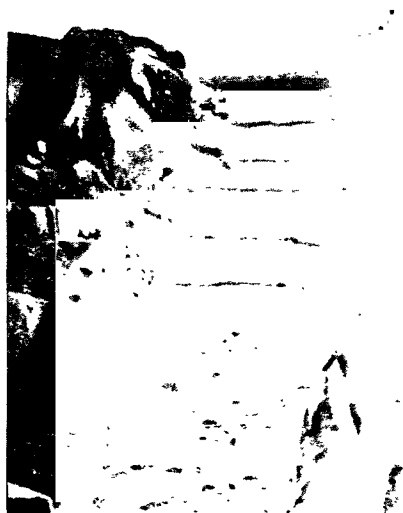


Fig. 5. Remains of the Stair.

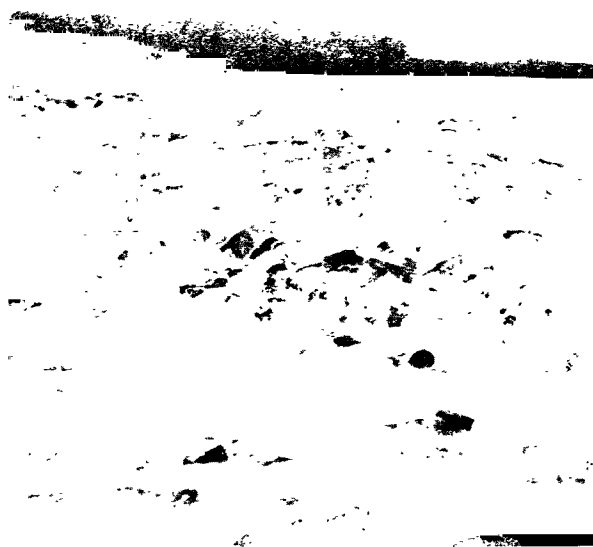


Fig. 6. View of Division Wall, with Main Wall beyond.

excavation disclosed yet another passage, 1 foot 6 inches wide. The course of this passage was followed, resulting in the discovery of a long chamber or gallery, 50 feet 9 inches long and about 4 feet 6 inches wide at the top. A few of the covering stones remain in position here and there, which proved sources of trouble and danger in clearing out the debris which filled the chamber or gallery.



Fig. 7. Second Entrance on the East Side of the Dun, seen from the Interior.

A second entrance to the broch from the outside was not expected, but further work in the entrance to this chamber or gallery resulted in the discovery of a continuation across the gallery right through the thickness of the wall. At the point of exit the width is 2 feet 6 inches. Fig. 7 shows this second entrance as seen from the interior, with the lintel in position. Fig. 8 shows the situation as viewed from outside the "Dun." I was at first inclined to regard the eastern section of this passage as foreign to the original scheme of construction, but an examination of the structure and the presence of the lintel at the

mouth of the exit, lead me to regard it as of the same period as the main entrance on the west. I understand that, while not usual, two entrances from the outside have been known to occur.

The building itself having been described, I next deal with the objects of interest that were recovered among the ashes and soil in the interior of the court, and in the various chambers and passages enumerated. The system followed in the search for relics was as follows. The soil and ashes were carefully lifted in a trowel, passed through the fingers, and

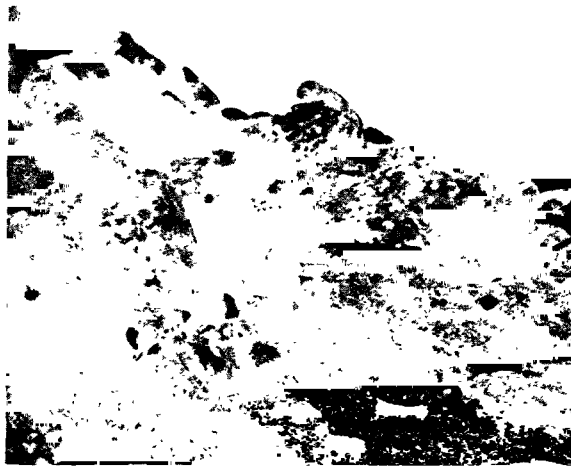


Fig. 8. The Outer View of the Second Entrance.

also examined by the eye. All objects, even the most doubtful in value, were laid aside for subsequent inspection, and the examined soil, etc., was passed into a box, which, when full, was emptied outside the "Dun."

The most interesting relic recovered is a necklace of fifty-nine amber beads (fig. 9). Forty-eight of these beads were found under a slab in the entrance to the chamber immediately to the east of the north guard chamber. The slab was hollowed out on its under side, thus preventing the weight of the stone from resting on the beads, a fact which, in addition to the number of the beads, leads, I think, clearly to the inference that this place was carefully selected as a safe hiding-place. The eleven additional beads which go to complete the necklace were found in clay overlying the subsoil beneath a small hearth in the

same chamber. Each of the beads is in form a section of a cylinder, varying in depth from 2 mm. to 6 mm. They have been carefully graduated to cause the necklace to taper to either end, the largest beads at the centre having a diameter of 1·2 cm., and those at the extremities of 7 mm. Further, to keep the beads in close contact on the curve, some of them have been fashioned with their opposite planes slightly converging. The extreme length of the necklace, following

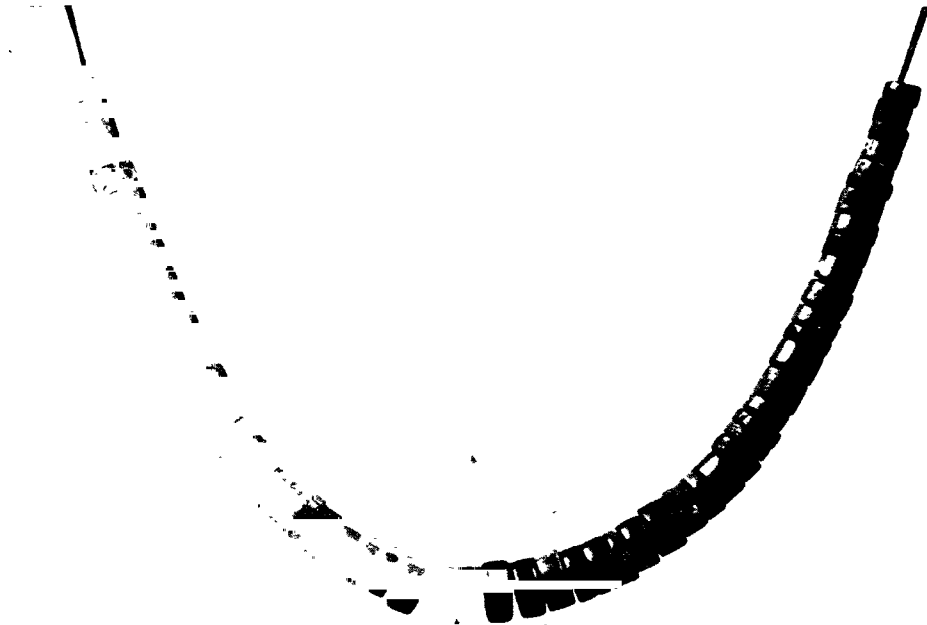


Fig. 9. Necklace of Amber Beads.

the curve when strung, is 10½ inches. Along with the amber beads were found one large translucent spheroid bead (fig. 10, No. 2) of green glass, and two opaque beads of a reddish-brown colour (fig. 10, Nos. 5 and 6), each in form a double truncated cone. Beads of the type of those forming the amber necklace have been found in Anglo-Saxon graves, and in similar graves beads of the type of the two opaque red beads are of frequent occurrence. Inside this chamber, in a corner, a fawn-coloured bead, with a spiral pattern (fig. 10, No. 1), was found.

In the centre of the court, among the ashes and clay, a flat, opaque yellow bead (fig. 10, No. 7) was unearthed; a similar bead was found at Traprain at the lowest level, from which the latest relics apparently

dated from the commencement of the second century of our era. At the base of the secondary wall a portion of yet another bead was

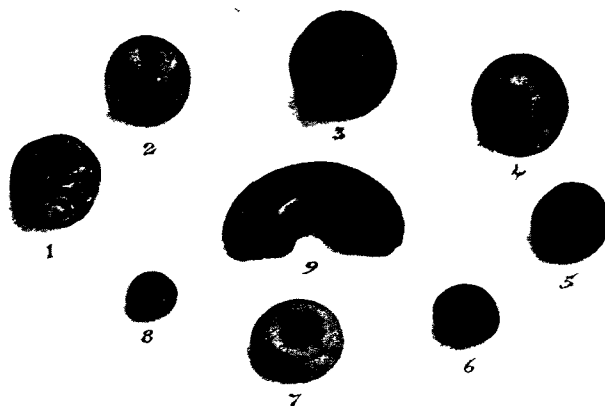


Fig. 10. Beads of various kinds from Dun an Iardhard.

discovered, of black glass, with streaks of blue and yellow which seem to have been twisted round it (fig. 10, No. 9). In addition, two more spheroid beads of green translucent glass were recovered (fig. 10,



Fig. 11. Object from Dun an Iardhard.

Nos. 3 and 4), one at the floor level within the court, and the other at a high level in the main entrance passage.¹

I have considerable difficulty in discussing an object to which I cannot even give a name, but fig. 11, so far as form and design are

¹ The small bead (fig. 10, No. 8) was not found in Dun an Iardhard, but was accidentally included among the relics.

concerned, explains itself. It represents a hollow, buff-coloured piece of earthenware, about 2 inches long, $1\frac{1}{2}$ inches broad, and about $1\frac{1}{4}$ inches high, crossed longitudinally and again transversely at the centre by a narrow band which conceivably represents a cord fastening a bale. The top, ends, and sides are fashioned with a series of pointed ovate impressions grooved on their surface. The material from which the object has been formed is of fine texture: on the surface in the interstices there is a trace of what may have been a white pigment or lacquer. It is light in weight and fragile. In composition, workmanship, and elaborateness of ornamentation it differs from all the other fragments of earthenware found in the broch.

The objects in stone include a portion of an armlet (fig. 12) made of polished steatite, of the unusual breadth of $1\frac{3}{16}$ inches; a per-



Fig. 12. Portion of an Armlet of Steatite.

forated quern stone; three rubbing stones; a whetstone; two oval-shaped pebbles of quartzite with smooth surfaces and longitudinal grooves on each side, one of which, also abraded at both ends, shows on one surface a number of particles of iron oxide, in streaks, following the directions of the longitudinal grooves; three small flint scrapers and another piece of worked flint; three complete and one incomplete perforated sandstone whorls, one of them decorated with radial lines on one surface and a concentric incised circle on the other; also an oval pebble of quartzite measuring superficially $3\frac{1}{8}$ inches by $3\frac{5}{8}$ inches, abraded at both ends, and which has been used as a hammer-stone.

A large quantity of iron refuse or "clinker" was found, and some fragments of bolts.

The pottery recovered from Dun an Iardhard (figs. 13 and 14) is of special interest. It is for the most part formed from carefully washed or refined clay, devoid of stones or foreign matter: much of it ornamented either with incised diaper or chevron devices, with raised wavy lines, or circular impressions produced on an applied fillet. The

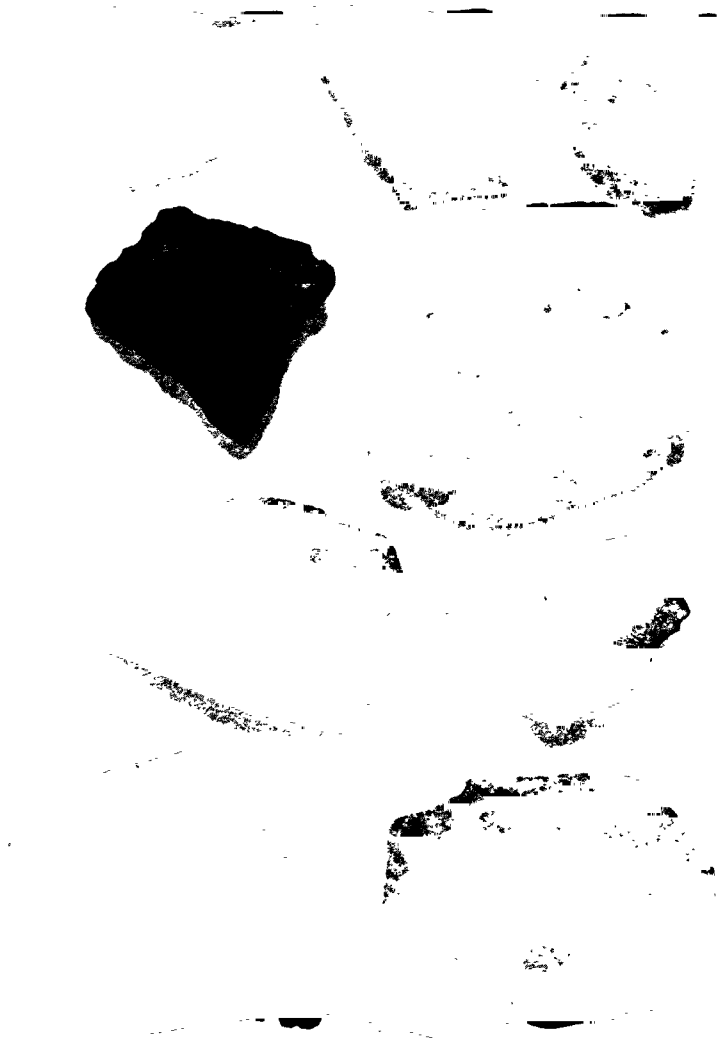


Fig. 13. Pottery from Dun an Iardhard.

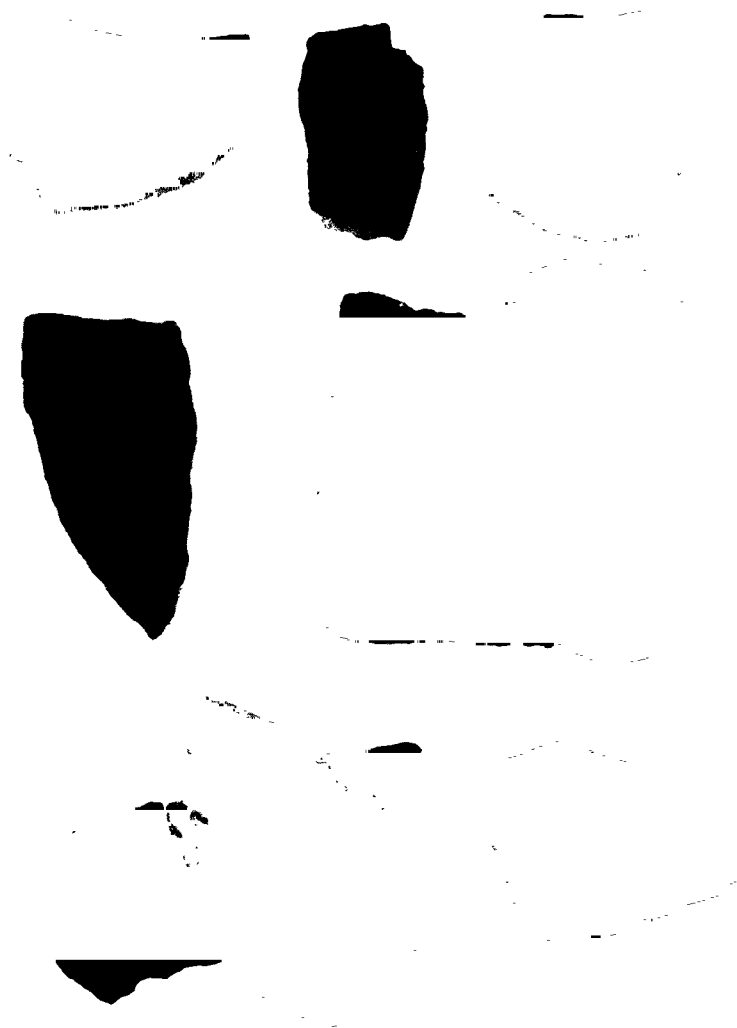


Fig. 14. Pottery from Dun an Iardhard.

class of pottery resembles that found in the broch of Ayre, in Orkney, illustrated in the last volume of the *Proceedings*, also pottery found in kitchen middens, duns, and other sites in the Western Isles.¹

Many of the pieces were found at the foot of the staircase.

A collection of bones found has been kindly examined by Dr James Ritchie, D.Sc., whose Report is annexed.

The relics have been presented to the National Museum of Antiquities by the Countess Latour.

NOTES ON THE ANIMAL REMAINS. By JAMES RITCHIE, M.A., D.Sc.,
Royal Scottish Museum.

The very small collection of bones from this excavation represented only a few food animals. None of the bones examined showed direct traces of man's handiwork, though a few had suffered damage from fire. The animals, remains of which have been identified, were:—

1. OX. A single first incisor from a lower jaw.
2. GOAT, *Capra hircus*, Linnæus. The skull of a young specimen with horn cores, and upper jaws; and several limb bones.
3. TURBARY SHEEP, *Ovis aries*, var. *palustris*, Rütimeyer. A few slender limb bones indicate this variety.
4. A Gadoid Fish, the LING, *Molva molva*, Linnæus. An earbone (otolith), fragment of dentary and one or two other skull bones.

¹ Cf. Beveridge's *Coll and Tiree*, p. 174 et seq.

II.

NOTES ON CONTIN CHURCH, ROSS-SHIRE, WITH ITS SACRAMENT HOUSE, AND TWO SEPULCHRAL SLABS IN THE CHURCHYARD.
BY THE REV. A. C. MACLEAN, MINISTER OF CONTIN.

As Contin Church was dedicated in the name of St Maelrubha, the "Red Monk" of Applecross, it is probable that it was actually founded by him and was the scene of some of his labours. In the case of churches dedicated to Celtic saints this was often the case. The name of St Maelrubha is thus connected with the churches of Applecross, Lochcarron, Isle Maree, and Urquhart in the same county of Ross; with Lairg and perhaps Golspie in Sutherland; Bracadale in Skye; Harris in the Outer Islands; Kilarrow in Islay; Craignish in Argyllshire; besides Keith in Banffshire, Kinnell in Forfarshire, and Crail in Fife.¹ Of Irish royal lineage, St Maelrubha is said to have been born in A.D. 642, and to have ultimately reached Applecross about 673 by way of Iona. His Ross-shire churches may therefore have been founded at the end of the seventh century, or at the beginning of the eighth. He is said to have died in 722. Till the beginning of the nineteenth century there was still held within sight of Contin Church a market called Feill Maree, afterwards removed to Dingwall, and practically forgotten now. Within sight of the church is also a name-site of St Maelrubha—Preasmaree. For something more than a century the spot has been used as the family burial-place of the Mackenzies of Coul. Within the enclosure, about three-quarters of an acre in extent, are a number of stones, cup-marked, and a grave of slabs of stone with the covering slab removed.

Historical references to Contin Church are few. In 1227 John, vicar of Contin, was present at Kenedor with others of the clergy of Ross at the settlement of a dispute between the bishops of Moray and Ross regarding the churches of Kyntalargyn and Ardrosser (*i.e.* Kiltarlity and Ardersier). In the lessons for St Maelrubha's day in the Aberdeen Breviary² we are told that *prefati insulani*, perhaps Danes or perhaps men from some of the islands, invaded Ross and slaughtered the congregation who were keeping St Maelrubha's feast in his church at Contin. In 1529 the Premonstratensian canons of Fearn had a yearly payment of 8 lbs. of wax in the town called Contin.

¹ See Dr A. P. Forbes, *Kalendars of Scottish Saints*, p. 382, and Dr Reeves' paper "St Maelrubha: his History and Churches," in the *Proceedings* of this Society, iii. p. 258.

² *Breviarii Aberdonensis pars æstiva*, fo. xc.

In 1550 Queen Mary presented David Stewart to the rectory of Qwentan, vacant by the death of one Fores. At the Reformation the parsonage and vicarage belonged to Mr Robert Burnet, who had two sons legitimated in 1575, and who appears in 1587 as vicar of Contin and canon of Ross.¹

The church appears to be in the main a mediæval building, 61 feet by 25 feet externally, 55 feet by 18 feet within. There do not seem to have been any openings in the north wall, or the east and west gables. About 1832 repairs were made and 8 feet added to the walls to allow headroom for galleries, altering the whole fashion of the church. At various times doors and windows have been opened, closed, or altered, and new doors were made at each end of the south wall to give access to these new galleries, and a session house was added at the middle of the south side. At that date windows to light the galleries were opened in both gables.

About 11 feet from the east gable in the south wall are remains of the jambs of a doorway which must have led into the chancel, and some 10 feet from the west end are the jambs of the doorway to the nave, now built up. When the new doorways were opened, the freestone mouldings of the original doorways were carefully turned into the building, and new faces, square in section, cut on the face where the stones had been damaged. The main walls of the church were built of water-worn schist stones, picked out of the river hard by, and set with hard white lime. Freestone was used for the jambs and lintels of the doorways and windows, and for the quoins at the corners of the church. The main walls of the present church may have been built about 1490, as the former church had been burned by the Macdonalds about 1482-1488.

Lying in the churchyard is a slab of schist, 6 feet 6 inches long, carved with an elaborate floriated cross in low relief (fig. 1). The upper part of the slab is somewhat broken at one corner, but the breadth at the arms of the cross is 22 inches, and at the foot of the slab 20 inches. The cross has a richly ornamented head; the arms end in leaves with three points, not unlike ivy leaves; from each arm spring similar leaves, one on each side, their stems being returned to meet the stems of the opposite leaves springing from the adjacent arm of the cross, so as to form four three-quarters of circles joining each other at the middle of each arm, and leaving small panels roughly triangular where the arms intersect at the centre of the cross. The shaft of the cross is floriated; five pairs of leaves, each with three points, springing from it, each pair leaving the shaft above a pair of short, single-pointed

¹ *Origines Parochiales*, ii. p. 504.

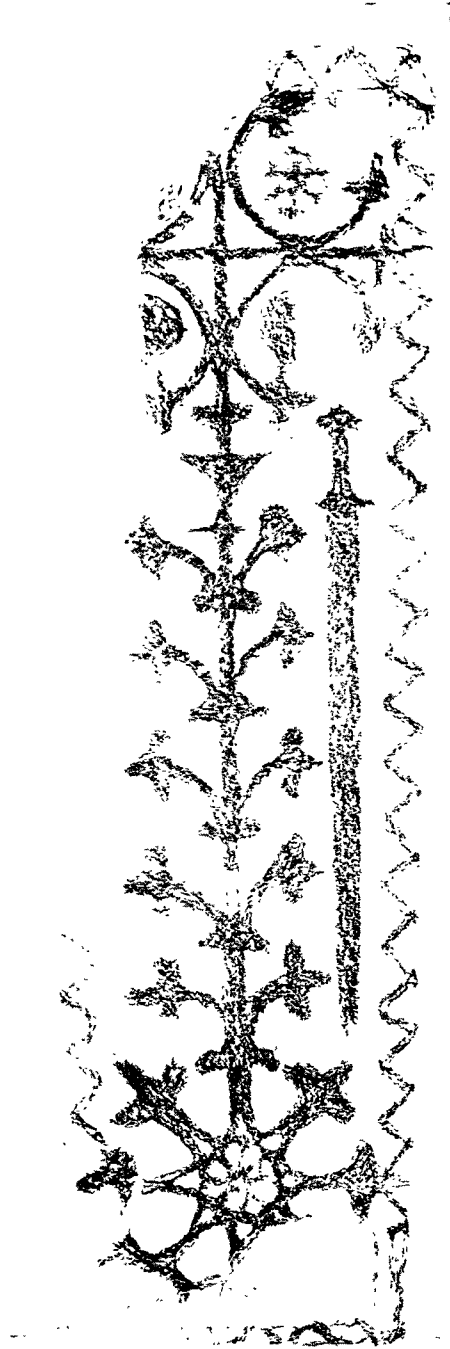


Fig. 1. Slab in the Churchyard carved in Relief. From a rubbing
6 feet 6 inches in length.

leaves at intervals of about 7 inches. At the top of the shaft are three expansions not unlike the knop at the top of the shaft of a processional cross, but perhaps intended for groups of leaves. The shaft does not rise from steps in the usual way, but terminates below in an arm of a second and smaller cross of the wheel type, with eight points, each ending in a trefoiled leaf, the stem of which divides and joins on each side with the stem of the leaf next but one. These stems thus form parts of a series of intersecting quarter circles, the space in the centre of the cross being filled with a wheel-like ornament, within a circle 6 inches wide.

In the spaces between the arms of the head of the cross, or rather, between the arms of the larger or principal cross, are ornaments which are rather puzzling. That on the dexter side above the transverse cross arm is broken away; on the sinister side there is a six-pointed wheel-like ornament or flower, of which the points are floriated at the ends. On the dexter side below the arm is the greater part of a plain disc, of which the outer part is broken away, while opposite to it is half a similar disc. A possible explanation is that these discs were intended to be carved as ornaments and were never finished; that an attempt was made to carve the sinister disc and that it failed, so that half was left uncarved and the rest merely cleared away. It is by no means certain that the rest of the cross was ever quite finished; while the present surface may be due to weathering, it is also possible that the final touches were never put to it.

The leaves springing from the sinister side of the cross-shaft are about $1\frac{1}{4}$ inches shorter than those on the other side, leaving space for a sword, 3 feet 3 inches long, with short quillons at right angles to the handle, which is $6\frac{1}{2}$ inches long.

Upon a chamfer $2\frac{1}{2}$ inches wide round the edge of the slab runs a zigzag ornament not unlike a series of half dog-teeth, each member of the zigzag being thicker in the middle than at the ends. The leaves at the ends of the arms of the cross extend over the chamfer and intersect the zigzag.

The total length of the design has originally been 6 feet 7 inches, that of the shaft 2 feet 11 inches between the crosses. The diameter of the cross at the head has been 2 feet 2 inches, of that at the foot, 1 foot 8 inches. The shaft is about $1\frac{1}{4}$ inches thick.

Upon another stone is a fine large wheel-cross head (fig. 2) consisting of a central boss about 4 inches wide, in the midst of a raised centre from which radiate eight equidistant arms terminating in bold fleurs-de-lys, the points of which join in most cases. A circle 17 inches in external diameter and $1\frac{1}{2}$ inches thick crosses the arms at the spring of the fleurs-

CONTIN CHURCH, ROSS-SHIRE, WITH ITS SACRAMENT HOUSE. 75

de-lys, which are outside it. The width of the cross is about 2 feet 6 inches and the arms are 2 to 3 inches thick.

During repairs to the church in 1908, a sacrament house was dis-

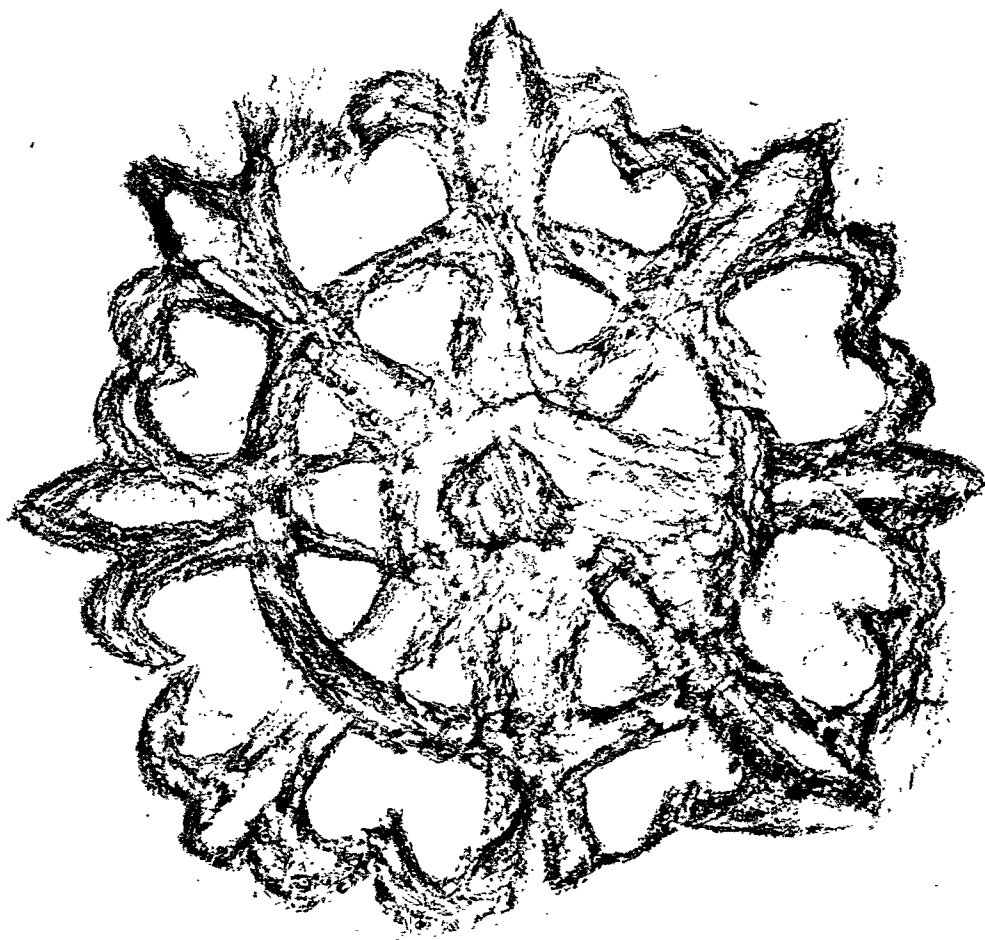


Fig. 2. Head of another Cross in the Churchyard. From a rubbing.

closed in the north wall of the church about 4 feet from the east end. It had been covered with lath and plaster during the alterations in 1835-1836, and supports for the laths were driven into the mouldings. The gallery staircase has now been raised to allow the sacrament house to be seen.

The sacrament house is much plainer than most of the better known examples further south (fig. 3). The arch is bluntly pointed, and its large and shallow mouldings surround a check for the door. Its height to the outside of the mouldings is 3 feet, and its width 2 feet 6 $\frac{1}{4}$ inches. The opening is only 1 foot 9 inches high by 1 foot 1 $\frac{1}{2}$ inches wide. As in other cases, the interior of the recess is larger than the doorway; it is 1 foot 8 inches wide, 1 foot 4 inches deep, and 2 feet 4 inches high. From



Fig. 3. The Sacrament House. From a photograph.

the character of the mouldings (see fig. 4) it is probable that the sacrament house is of very late date, not earlier than the end of the fifteenth century. The material is a local grey sandstone.

Almost in the middle of the north wall, and near the ground, is a recess for an effigy, which has now disappeared. The arch springs from plain rectangular jambs at a height of about 1 foot from the original ground level, and is segmental in form with a roll moulding on the edge and a hollow outside it. The length of the recess is 6 feet 7 $\frac{1}{2}$ inches, the depth 1 foot 5 inches, and the height to the crown of the arch 2 feet 10 inches.

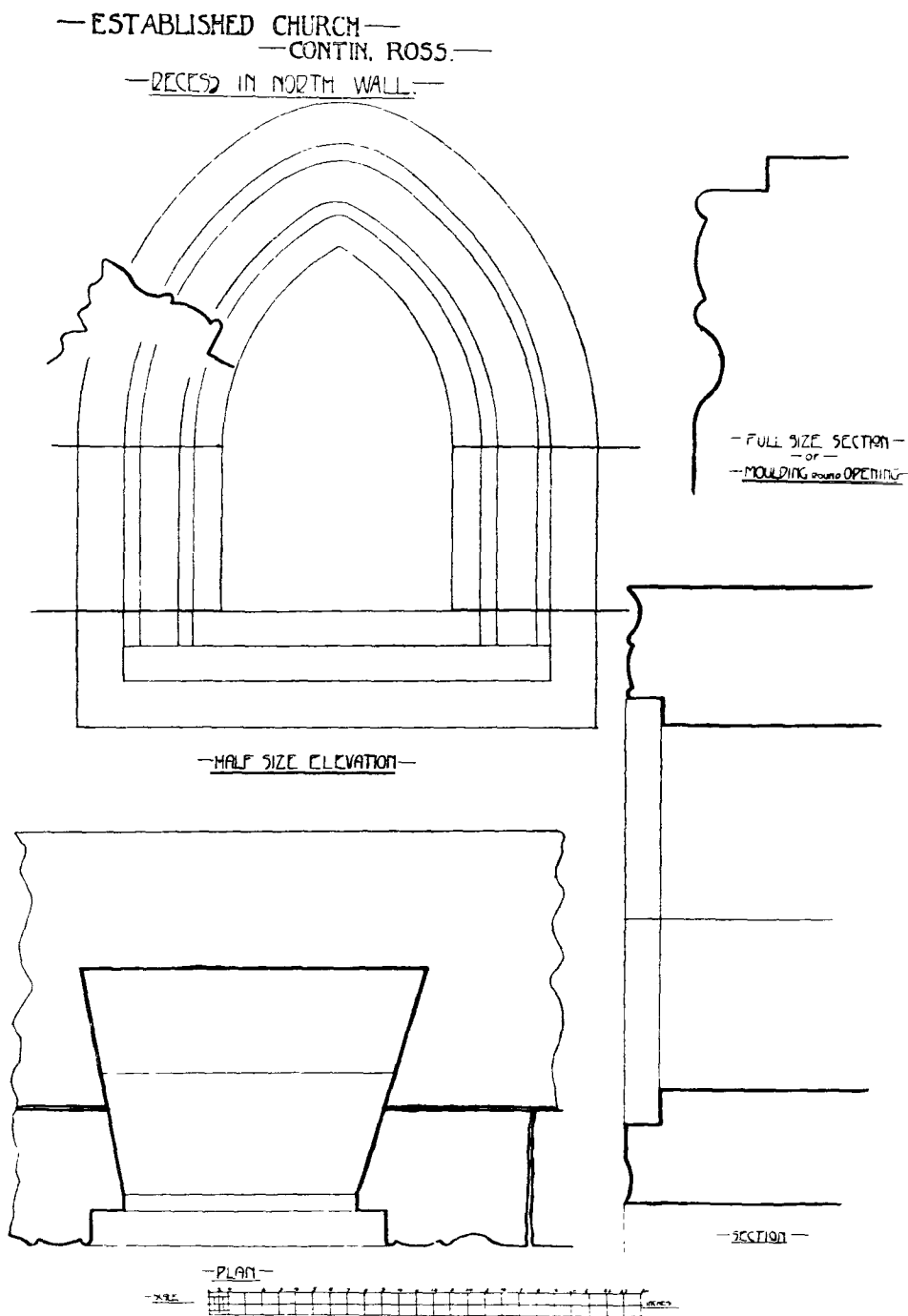


Fig. 4. Plan and Details of Elevation of the Sacrament House.

In the *Statistical Account* it is referred to as "cist Mhiclea Mhoir," the tomb of the big Maclay. The material is reddish-grey sandstone. Excavation to a depth of $2\frac{1}{2}$ feet failed to reveal any trace of the effigy, and only brought to light about half a dozen human skulls and a large number of bones thrown in indiscriminately.

Beneath the floor of the church were found in 1908 three carefully dressed stones, each square in section, but curved, as if to form part of an arch, terminating in vertical pointed edges set at right angles to the foot of the stone, so that the three curved stones if placed with the pointed edges of the vertical parts together would form a small structure like three out of four ribs of quadripartite vaulting supporting part of a square boss. These three stones, with a fourth, might perhaps have formed part of the framework of a small stone belfry, although the whole structure must necessarily have been very small.

The drawings and measurements of the sacrament house are by Mr Alexander Maclean, architect, a native of Contin.

III.

NOTE ON A "DAG" OR PISTOL WITH SNAPHAUNCE LOCK AND PEAR-SHAPED BUTT. BY CHARLES E. WHITELOW, F.S.A. SCOT.

The lock (fig. 1) is on the snaphaunce principle, that is, the nose of the sear projects through the lock plate and catches over a spur on the back of the doghead; the friction plate and pan-cover are independent pieces, the latter being slid off on the fall of the doghead by the

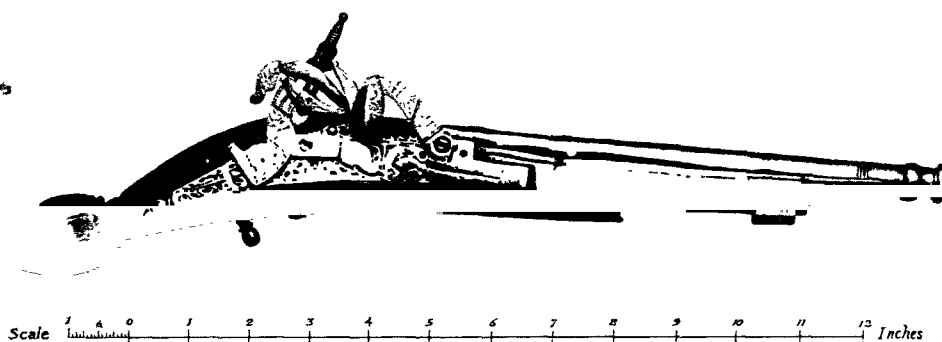


Fig. 1. Dag with Snaphaunce Lock.

thrust of an arm connected to the tumbler. There is no arrangement for half-cock. The lock plate is of brass incised with foliaceous scrolls and interlaced work, and bears the initials of the maker [R. M.]. The works are of steel incised with foliaceous ornament, the pan having a small outer shield or "fence," straight on the sides and peaked top and bottom, while the jaws of the doghead are closed by a nut travelling down the pin. The trigger of steel has a small ball terminal.

The stock is of walnut wood with a small pear-shaped butt of octagonal section incised with lines and dots, and has no mounts. The butt has a "cast off" or curve inwards to adjust it to the hand and ensure straight shooting. The ramrod is missing, but was of wood, probably finished with a bone tip in keeping with the muzzle. There is the usual belt hook of iron.

The barrel is of brass, circular, with raised moulded cross bands,

that at the muzzle being octagonal, and the interspaces are engraved with plain intertwined bands, forming panels, filled in with foliaceous ornament, finished at the muzzle with the Scottish thistle. The breech has a raised comb with a sighting notch, and bears the date 1625, which was probably repeated on the pan shield, but is no longer visible.

Total length	.	.	.	.	15	inches (38.1 cm.)
Length of barrel	.	.	.	.	$9\frac{11}{16}$	inches (24.6 cm.)
Bore	.	.	.	.	$\frac{7}{16}$	inch (1.1 cm.)

Remarks.—This is a fine specimen of this type of the earliest form of Scottish firearm. There are two types, those with a bulbous butt and those with a flat butt, finished by a scroll-like form (one of the latter is in the Noel Paton Collection, Royal Scottish Museum). They were stocked with wood or metal—either all brass, all steel, or a combination of both.

Dag-makers are to be found on the Hammermen Craft books during the sixteenth and seventeenth centuries, and their work is to be found not only in this country but abroad, the earliest dated example known being a pair in the Museum at Dresden bearing the date 1598.

I would point to Holland as the source of inspiration.

IV.

MEDIÆVAL STAINED GLASS RECENTLY RECOVERED FROM THE
RUINS OF HOLYROOD ABBEY CHURCH. BY F. C. EELES,
F.S.A. SCOT.

The fragments of mediæval stained glass about to be described were found on the top of the vaulting of the south aisle of the nave of Holyrood Abbey Church during repairs to the roof in 1909. They have since been carefully cleaned and set up to form part of a window at the east end of the picture gallery. Their discovery is of first-class importance to Scottish ecclesiastical archæology, because hardly any stained glass has survived from mediæval Scotland.

A ROUGH SKETCH OF THE HISTORY OF STAINED GLASS.

Before describing the Holyrood glass in detail, it will perhaps be as well to run over, very briefly, the history and development of mediæval stained glass, as a glance at the main points may make it easier to realise the exact position and relation of the newly recovered Holyrood fragments.

The ornamentation of glass vessels by means of colour was practised by the Romans as well as other ancient nations, and the decoration of a large surface by means of a number of pieces of coloured glass or glazed material carefully fitted together was also well known, but the principle was not applied to windows, although the glazing of windows with plain glass was known to the Romans, for window glass is found in almost every Roman fort. In the middle of the seventh century, Benedict Biscop brought glass workers from Gaul to glaze the windows of his churches at Wearmouth and Jarrow, and as church architecture progressed during what is called the Romanesque period, methods of window glazing also underwent a corresponding development.

Coloured glass, arranged in patterns after the manner of a mosaic, was commonly employed in churches before the eleventh century, and the further development of foliage and figure work must have followed very quickly, for all our evidence goes to show that stained glass as we know it, though in its earliest form, was the rule for a great and rich church at the beginning of the Norman period in our island, and that it had been in use on the Continent for some time previously. As a decorative art, the staining of glass probably arose in Gaul.

Early glass was very thick, and the pieces were small. The lead-
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work in which it was set and the ironwork that supported it had to be strong and plentiful. From the first, both leading and ironwork were so arranged as to have a distinct decorative value. The glass

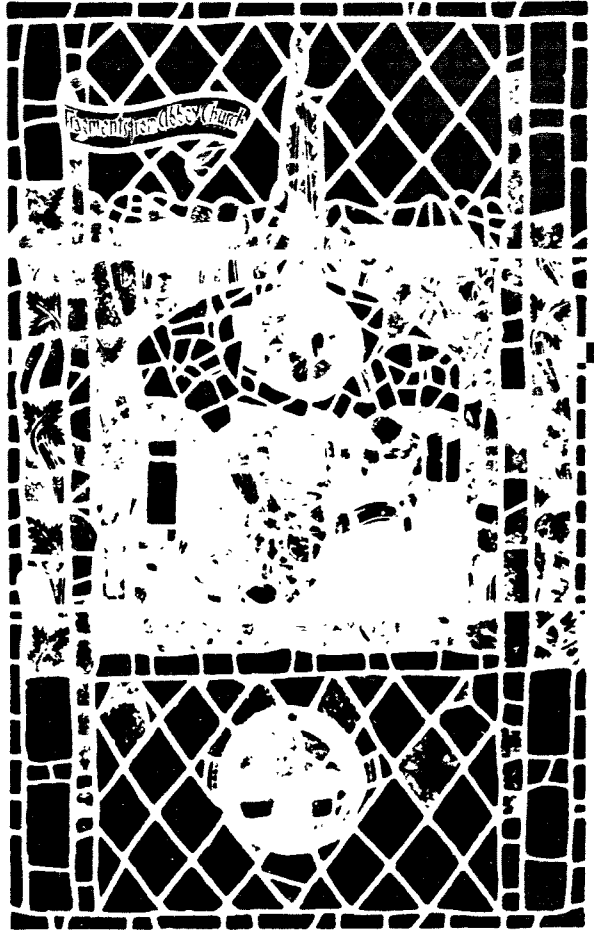


Fig. 1. Central part of window at east end of picture gallery at Holyrood Palace, showing fragments of stained glass refixed for preservation.

was placed in medallions of various forms, and the windows were divided into corresponding sections by the supporting ironwork. The heavy leadwork was carefully utilised to outline and emphasise the figures, ornaments, or groups.

The glass was coloured all through in the making; it was what is

called "pot-metal" glass; only in the case of red was there any difference in manufacture, and that was "flushed," a thin red coating being spread by a blow-pipe over a sheet of white glass. All the glass was thick and



Fig. 2. Fragments of ancient glass found at Holyrood.

full of bubbles, but irregular in thickness. These characteristics, coupled with the wavy surface, broke up and refracted the light in such a way as to produce those extraordinarily rich and brilliant colour effects which are so noticeable in early glass.

In glass of the Norman period, such as still exists in France and to some extent in England, as at Canterbury and York, the designs of

the windows consisted of small, and somewhat thin and angular figures in groups, set in medallions. The backgrounds were of plain glass, usually red or blue.

Foliage was but sparingly used, and was nearly always of the stiff acanthus-leaf variety, so familiar in Norman stonework and in manuscript illuminations of the period.

With the thirteenth century came First Pointed or Early English architecture, and the introduction of the earliest forms of Gothic ornament. Figures were enlarged and improved, foliage was extensively used and made much more free and varied, though it still followed the conventional types which we know so well in books and carved stone. The medallions in which scenes were placed became more varied in form, and the larger figures were used singly in lancet windows and placed beneath simple canopies. While the backgrounds of scenes and figures continued to be of plain glass, the groundwork of the window as a whole, forming the spaces above or below medallions or niches, was treated with elaborate interlacing designs of branches and leaves, often most ingeniously arranged upon the lines of different geometrical figures. Sometimes this foliage groundwork was made wholly of white, or rather pale blue-green glass, the background of which was covered with cross hatching, throwing up into strong relief crisp and vigorous foliage of the characteristic First Pointed type. This kind of glass has a silvery-grey appearance at a distance and is known as *grisaille*. It is frequently used in clearstory windows.

Towards the end of the thirteenth century, as architectural forms became less severe, the canopies over single figures assumed a richer character, their arches were trefoiled and the containing gables crocketed. These arches and crockets were usually made of brilliant pot-metal yellow glass, which has a brassy appearance.

With the fourteenth century came the introduction of large traceried windows, which provided a wider field for the glazier. The early years of the same century also saw the discovery of what is known as "yellow stain," caused by the application of chloride of silver to white glass, by the use of which a pale yellow could be produced, giving a lighter and altogether different effect from that of the heavy, brassy, pot-metal yellow, and the colour could also be applied where necessary to a portion only of a piece of white glass, so as to produce another variety of decorative treatment. Figures were made larger, and a rich diaper on red or blue or sometimes green glass was used for their backgrounds. Scenes were placed in compartments under small canopies instead of in medallions. Glass became thinner, smoother, and less deep in colour. The most characteristic fourteenth-century development was the great

elaboration of the canopy over the single figure. The crocketed gable was increased in height, its crockets enlarged, and a wall-like background was provided, often embattled and otherwise enriched. The flanking pinnacles rose to a great height and were subdivided into smaller ones above, while additional pinnacles and gablets rose in the background. But the whole structure was depicted on the flat and without perspective. Grisaille work and foliage borders changed their character in accordance with the style of the time and became naturalistic. Oak leaves and acorns, ivy leaves and berries, take the place of the crisp and lumpy conventional foliage of the previous century. Grisaille backgrounds lose their geometrical character and consist of natural stems and leaves wandering about over a trellis-work of varied geometrical forms produced by the careful arrangement of the leadwork.

In the fifteenth century Perpendicular architecture overspread England and brought still larger windows and a new style of glass, of which the chief characteristic is an increased use of white and general lightness of colour. Canopies, whether over single figures or groups, became still more elaborate, were drawn in perspective, and usually made very white, conveying the impression of white stone. The brown enamel, hitherto laid on in mass and then scraped away to show the coloured design in relief, began to be applied in thin lines to make shading and outline patterns. Some of the colours changed; blues became more purple or much paler, reds more scarlet, yellows paler, and greens yellower. In general, there is a light and silvery appearance unknown before, and the figures and scenes become more and more realistic. Where there is a conventional background, the connected design of the old grisaille disappears, each quarry is treated separately and bears a conventional flower or an heraldic charge. The whole effect of these fifteenth-century backgrounds resembles that of what was called "powdering" in decorative work at the time.

The introduction of enamel painting (to be carefully distinguished from the single dark brown enamel hitherto used) in the sixteenth century brought a revolution in stained glass. Scenes began to be painted in different colours upon white glass. Hitherto, the various colours had been produced by the selection and arrangement of different pieces of coloured glass, the effect being helped out by enamel brown upon the glass, but not by the application of any colour except yellow stain upon white glass. This made it impossible to produce much minute detail except in strict subordination to a broad colour scheme. And as stained-glass windows depend for their effect upon such a colour scheme, the delicately painted medallions, the carefully shaded figures, and the overloaded detail of the new method proved to be the ruin of

the art as a whole. Very charming work was done in some of these early enamel-painted medallions, a type of glass peculiarly suited to domestic use, and some of the larger work of this kind has distinct merit along a line of its own. But it was vitiated by its artificiality. The old art of making the coloured glass, the material itself, tell the story, was true to the spontaneous spirit of the Gothic period. Whether of the earlier or later type, such work has brilliancy, effectiveness, and the subtle indefinable charm which belongs to the more natural and direct forms of art, that one instinctively feels to be lacking in even the best glass of the Renaissance. And the subsequent history of the enamel-painted window showed that it marked the decadence of glass painting.

ANCIENT GLASS IN SCOTLAND.

When we turn to Scotland we find a greater scarcity of old glass than in any other countries of Western Europe, except perhaps Ireland, Denmark, and Norway. It is distressingly easy to summarise what has survived.

I. *Fragments.*

(1) A considerable collection of small fragments at St Andrews, now in the Cathedral museum there, mostly in very brittle and decayed condition, and all very small, was found in the north transept. The few that have any ornament appear to belong to the first part of the thirteenth century, as they show the small, sharply pointed acanthus leaf commonly used in floral work at that time. Placed beside them are a few larger fragments from St Mary's at the Kirkheugh, some of which are of grisaille work of the usual late thirteenth-century type.

(2) At Coldingham Priory Church, Berwickshire, there are a few similar fragments of late thirteenth-century grisaille work and bordering, described and correctly illustrated in colour in the revised Report of the Royal Commission on Ancient Monuments for that county.

(3) In the National Museum this Society has a few small fragments from Dunfermline, Dunblane, Lindores, Iona, and Melrose. Of these, the Dunfermline fragments consist of grisaille work like that already referred to; some of those from Lindores seem to be the same; the Melrose fragment is a late scrap of red glass with three cross crosslets; and the rest are of indeterminate character.

(4) In the Smith Institute, Stirling, are a few small fragments from Cambuskenneth which I have not been able to examine, as the building is at present used for military purposes and the glass is inaccessible.

None of this glass is set up in window form, so as to be seen; until

the Holyrood glass was found, it was all the really mediæval glass known to have survived in Scotland. When it is pointed out that if it were all put together it would not amount to half what has been found at Holyrood, the importance of the Holyrood discovery will be realised.

Scotland possesses a little glass of the sixteenth-century heraldic type, namely:—

(5) In the Magdalen Chapel in the Cowgate, Edinburgh, are four fine heraldic roundels of the second quarter of the sixteenth century, reset in modern glass, but almost certainly still in the windows they originally occupied. These were carefully described and illustrated in colour in our *Proceedings* for 1886-7, vol. xxi. p. 266, by Mr George Seton, who considers that they must have been originally set up about 1545.

(6) In the chapel of Stobhall Castle, Perthshire, are considerable remains of heraldic glass of about the same time or a little later, together with fragments that may perhaps be earlier: these are described but not illustrated in our *Proceedings* for 1891-2, vol. xxvi. p. 34, by Mr J. M. Gray.

(7) At Fyvie Castle, a heraldic roundel dated 1599, and

(8) At Woodhouselee, a heraldic roundel dated 1600, both described in Mr Gray's paper already referred to.

II. *The Douglas Glass.*

Although neither of Scottish make nor a Scottish survival, the finest mediæval glass in Scotland cannot be passed over, for it would be remarkable anywhere. In the church of St Bride, Douglas, in Lanarkshire, are two windows, a large one of three lights and a small one of two, containing a great amount of early glass, some perhaps of the twelfth century, but mostly of the thirteenth. The principal subjects consist of the Blessed Virgin and the Holy Child, with the seated figure of King Hezekiah, taken no doubt from a window representing the Tree of Jesse. Two smaller groups represent SS. Peter and Paul, and SS. Simon and Bartholomew, under semicircular canopies, with scrolls bearing Lombardic inscriptions. There are medallions of the symbols of the four Evangelists and three circular floral medallions with the stiff leaf ornament common at the time. A large figure of St John the Evangelist, represented holding the chalice with the serpent flying out of it, belongs to the fifteenth century. The small two-light window contains thirteenth-century glass of a somewhat different character from the rest; in one light are two men in chain armour, in the other St Paul with his sword. No other church in Scotland can show the like, and although brought from elsewhere and fitted into these

windows in modern times, the glass is among the most interesting early glass in Britain, and is well worthy of careful description and illustration in detail and in the original colours.

III. *The Holyrood Glass.*

We are now in a position to appreciate the exact nature of the Holyrood discovery. While none of the pieces of glass are of very large size, a number of them are complete, several that were broken have been joined again, and others were originally adjacent. It has been possible to place many of the fragments in what were roughly their original relations, and there are enough to tell us very accurately the type of window from which they come. There are, in fact, fragments of the glass of two or more of the small lancet windows which at one time existed in the clearstory on the south side of the nave. One of these windows seems to have belonged to the end of the thirteenth century, another to the beginning of the fourteenth. The first of these is represented by several fragments of First Pointed grisaille work, some scraps of crocketing in rich pot-metal yellow, and one or two pieces of the drapery of a figure in the same yellow, and one or two pieces of drapery in green. Some green oak leaves, now placed in a medallion, and some plain red and blue background are also most probably of the earlier type. As there was a good deal of overlapping between the different kinds of work, it is possible that some of this glass may be a little later in date and of the same period as the next to be described.

The bulk of the coloured fragments belong to an early Decorated window, of the typical fourteenth-century type, with a large canopy over the figure and a foliage border all round. There is the top of a large pinnacle with cross-hatched shading in the middle and small crockets up the sides. There are pieces of panelling from the faces of the buttresses and shafts that supported the pinnacles. Several pieces of white cusping streaked with yellow stain belong to the arch over the figure, and some green background diapered with crescents, and other pieces outlined to represent stonework no doubt came from the embattled walls that were often combined with canopies of this class. Several beautiful pieces of deep ruby covered with a very characteristic wavy diaper pattern evidently formed part of the background of the figure beneath the canopy. A fragment of a crown may indicate that the figure represented one of the royal saints.

Perhaps the most striking of all the fragments are those which formed part of the foliage border which ran round the sides and arch

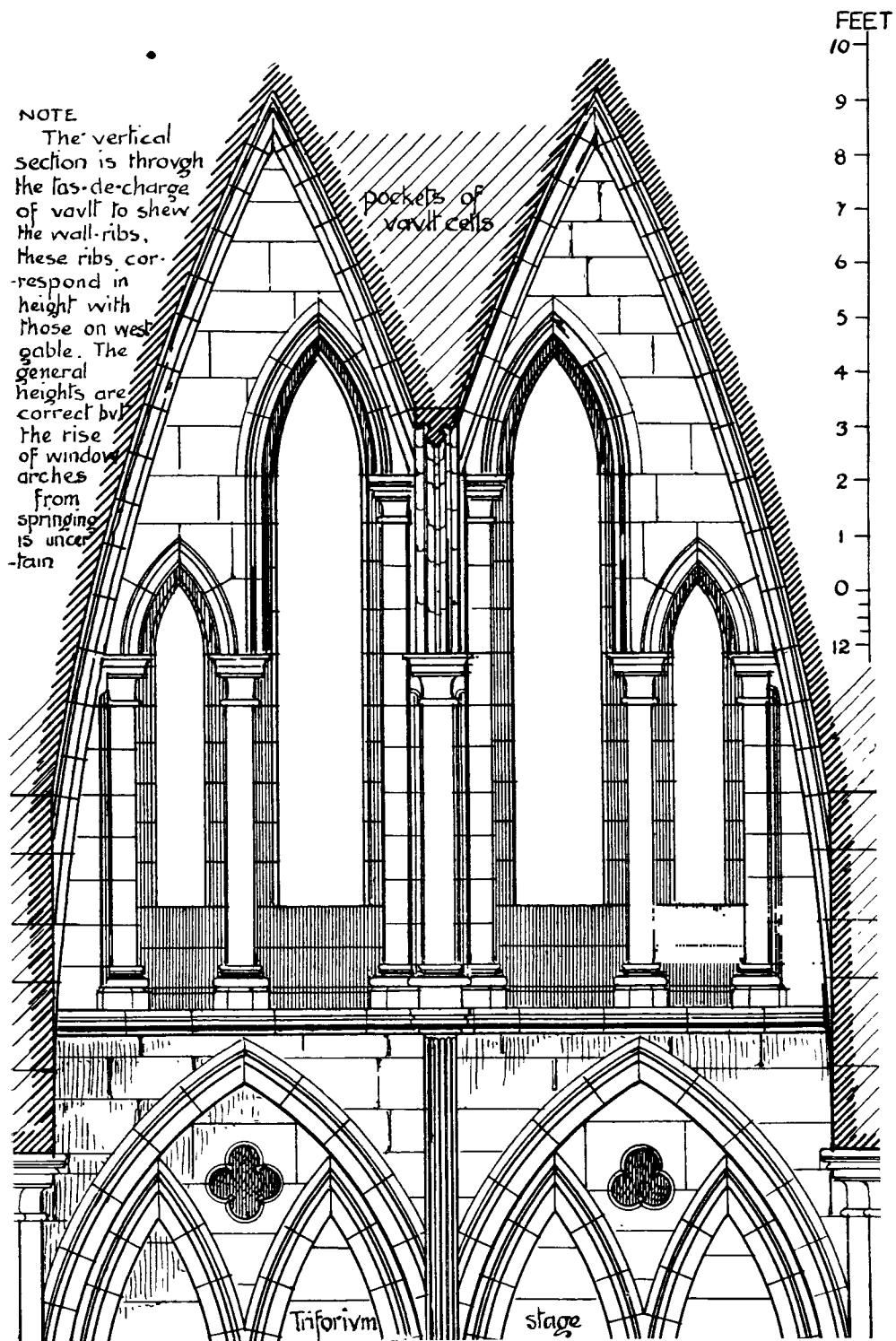


Fig. 3. Elevation of one bay of nave clearstory of Holyrood Abbey Church, reconstructed from existing remains, to show windows from which the glass came.

[Drawn by Mr John Watson.]

of the window. Several of these are perfect, or have been so easily joined that it has been possible to set them up in their original form as vertical borders, a section on either side of the principal collection of fragments. They consist of a thick yellow stem branching on one side into a leaf of quadrangular form, not unlike that of the hawthorn, with plain green glass in the angle on the opposite side of the stem. This particular formula for a border is very characteristic of early fourteenth-century work, and occurs in different varieties, according to the plant represented.

One or two fragments—a white scrap with foliage painted on it in enamel brown, in the very late style, a small piece of greyish blue and another piece of blue with a particular kind of floral diaper on it—may perhaps have come from a fifteenth-century window.

Besides the coloured glass there are numerous pieces of plain white glass of the beautiful greenish shade and the great thickness characteristic of early work. Some of the more perfect of these are diamond-shaped, others rectangular. They evidently come from a window of plain glass, glazed, no doubt, in the thirteenth century, when the church was built. Other white fragments are of a different kind altogether, much thinner, much more level in surface, and of the kind common in later days. They are probably relics of repairs to windows made when the nave was restored in the time of Charles I.

Many other fragments were found, but not in a condition in which they could be used. The action of fire on the earth and rubbish in which they had lain buried on the top of the south aisle vault had rendered them opaque and slaty. Many more were mere splinters, and there was a large quantity of uselessly small fragments of the late plain glass which seems to belong to the seventeenth century.

Some time ago, under the direction of Mr Oldrieve, the present writer spent many weeks sorting, cleaning, and arranging the glass at the Office of Works, with the help of Mr Ritchie. When it was all cleaned, and arranged as far as possible in accordance with what could be ascertained of the original design, the fragments which were capable of being set up in leads to form part of a window were placed in the hands of Mr Douglas Strachan, the well-known artist in stained glass, who set them up in the form in which they are now, in a frame which Mr Oldrieve arranged to fit into the lower part of the window in the centre of the east end of the long picture gallery of Holyrood Palace, not many feet from the position they originally occupied. They now form the most important group of fragments of mediæval stained glass that has come down to us in Scotland from mediæval times, and

MEDIÆVAL STAINED GLASS FROM HOLYROOD ABBEY CHURCH. 91

we owe a very great debt of gratitude to Mr Oldrieve for the effective steps he has taken to preserve them.

The questions now arise, Are these the remains of windows of Scottish manufacture, and if not, where did the glass come from? The answer to the first question is unfortunately in the negative, and the most probable answer to the second is the suggestion that they came from York. In the thirteenth century it must be remembered that nearly everything connected with the Scottish Church, or with building or art, came from England, and it is more than doubtful if a native school of glass painting could have developed here then. At that time, and for long afterwards, York was the great centre of glass painting for all the north of England. It would be the natural place to turn to. There is nothing whatever to distinguish the glass from English glass. A careful student of York glass, Miss M. Leaf, who is one of the best living authorities upon the glass of the north of England, has examined it all, and is of opinion that it was made there. The greater part of it is almost identical with glass of the same period still remaining in the York churches, especially the Minster; All Saints, North Street; St Denys, Walmgate; St Martin-cum-Gregory; St John, Ouse Bridge.

That the Holyrood canons should have patronised the York glaziers is most natural. Holyrood was colonised from Scone, and the Scone canons came from the great Yorkshire house of Austin canons at Nostell near Pontefract. That the Holyrood canons kept up a connection with English houses of the same order, we know from the manuscript Holyrood Ordinale belonging to Mr Moir Bryce, and now in the press for the Old Edinburgh Club, which contains an agreement between them and the canons of Carlisle regarding masses for deceased brethren.

In conclusion, the writer wishes to express his thanks to Miss Leaf for the enormous amount of time and trouble she has taken in going over the Holyrood glass and comparing it piece by piece with the glass at York; and also to Mr John Watson, who has made a special study of the structure of the Abbey Church, for the drawing (fig. 3) which reproduces a bay of the nave clearstory windows such as those for which the glass was made.

MONDAY, 9th February 1915.

The HON. JOHN ABERCROMBY, LL.D., in the Chair.

A Ballot having been taken, the following were duly elected Fellows:—

ROBERT LISTER MACNEIL of Barra, The Yorkshire, Washington, U.S.A.
J. H. MARTIN, Hollybank, Panmure Terrace, Dundee.
J. M. RUSK, S.S.C., Clinton House, Whitehouse Loan.
Countess VINCENT BAILLET DE LATOUR, Uiginish, Dunvegan, Skye.

The following Donations were exhibited, and thanks voted to the Donors:—

(1) By Miss LAING, 7 Cherry Bank, Newhaven Road, Leith.

Wooden Mallet, or “Beetle,” formerly used in mangling clothes.

(2) By D. HAY FLEMING, LL.D., F.S.A. Scot.

Trade Tokens—namely, two Edinburgh Halfpennies and one Glasgow Halfpenny.

(3) By M. MONTGOMERIE BELL, W.S., 9 Randolph Crescent.

Five volumes of Household Accounts for various years between 1808 and 1811, kept by the Rev. Dr Laurie, Minister of Newton Parish, Fife.

(4) By The Right Hon. A. J. BALFOUR, Whittingehame, through the Traprain Law Excavation Committee.

Large Collection of Relics obtained during excavations on Traprain Law in the summer of 1914. (See the subsequent communication by Mr A. O. Curle.)

PURCHASES.

The following Purchases were exhibited:—

Handled Urn found in a short cist on Balmuick Farm, near Comrie, in 1884. (See *Proceedings*, vol. xviii. p. 306.)

The Book of Arran. Vol. ii. By W. M. MACKENZIE.

The Annals of the Roman Imperial Army. By G. L. CHEESMAN.

The following Communications were read:—

I.

SOME RECENT DISCOVERIES ON THE LINE OF THE ANTONINE WALL. BY GEORGE MACDONALD, F.B.A., LL.D., F.S.A. Scot.

Of the three main elements that went to make up the barrier which Lollius Urbicus drew from Forth to Clyde in 142 A.D., the Military Way, always the least conspicuous, has vanished almost entirely. At one or two points a discerning eye can still distinguish its track. At a few others its remains would doubtless be found if they were systematically looked for. As a rule, its course can only be conjectured. The Wall itself is in somewhat better case. Consisting (as the Glasgow Archæological Society's *Report*¹ first taught us) of a substantial mass of turf, heaped some 10 feet high and resting on a solid and carefully-laid stone foundation from 14½ to 15½ feet broad, it was well calculated to resist the ordinary influences of time and weather. It is therefore not surprising that here and there across the isthmus it has been preserved in something approaching a recognisable shape. The Ditch, originally some 40 feet broad and 12 feet deep, was naturally much harder to eradicate. Even where it is no longer strongly marked, its precise direction can often be determined by the aid of a more or less faint depression on the present surface of the fields.

By following up this obvious clue it has been possible to map out the actual line of the Roman frontier for many miles with very substantial accuracy. The detailed description which I published in 1911² was based upon observations of the sort, coupled of course with such information as could be gleaned from the accounts furnished by earlier writers. But, after all the aid that surface appearances can give has been exhausted, there remain a considerable number of points, and some of them rather critical points, where we are left without any apparent guidance and where certainty is only to be obtained by properly directed exploration. During the past year or two, with the help of a Research Grant from the Carnegie Trust for the Universities of Scotland, I have been carrying on, in odd moments of leisure, a modest series of investigations designed to clear up some of the more conspicuous cases of doubt. Although the task I have set myself is not yet completed, the results already secured seem to possess sufficient interest to justify their being chronicled. And perhaps this is the most appropriate place in which to put on record my sense of

¹ Glasgow (MacLehose), 1899.

² *The Roman Wall in Scotland*, pp. 108 ff.

how deeply I am indebted to the proprietors and farmers on whose land I have had occasion to work. Individual names will be noted in connection with the different localities. Here it will be enough to say generally that without a single exception they have shown the greatest cordiality in giving leave to open up the ground, while several of them have rendered practical assistance of a very valuable kind. Of others whom I was fortunate enough to press into the service, I would specially mention Mr John M'Intosh of the Gartshore Estate and Mr Mungo Buchanan of Falkirk. I have also to thank the Director General of the Ordnance Survey, as well as Major Robinson, R.E., formerly officer in charge of the Northern District, for putting at my disposal the skill of Mr John Mathieson, one of the most experienced members of their staff. Mr Mathieson has grudged neither time nor pains to provide an accurate series of maps. Through the courtesy of the Controller of H.M. Stationery Office I have been able to utilise the publications of the Survey in preparing illustrations for this paper.

Before entering into details it will be well to give a brief description of the *modus operandi*. Theoretically the procedure is simple enough. If there is any hope of finding the stone foundation, that must be looked for first. As a rule, if it is to be got at all, it can be got by digging a foot or two below the present surface. And it would not be unnatural to expect that so substantial a mass would, for the most part, have remained undisturbed. Experience, however, goes to prove that in the case of all really difficult gaps the chances are that, if the Ditch has been rendered invisible, the stone foundation of the Wall has also been deliberately torn up, and all marks of its former presence removed, the progress of agriculture having been the common foe of both. In such circumstances one is thrown back upon the vanished Ditch. However completely this may have disappeared, it is hardly possible for it to be altogether lost. The earth that fills it cannot have consolidated so firmly as to be indistinguishable from the natural soil. The spade, properly wielded, will always bring out the difference. Sometimes, indeed, the difference is made apparent in another way. Where, as not infrequently happens, the foundations of a building of any size have been so laid as to extend on to the softer and less compact substratum, subsidences are apt to take place. Cracked walls and twisted gables may thus be highly significant.

The search for the Ditch, it should be added, has one obvious advantage as compared with the search for the stone foundation. Since it was 40 feet broad as against only $14\frac{1}{2}$ or $15\frac{1}{2}$, the odds in favour of hitting upon it within a given area are two or three times as heavy. On the other hand, to look for the Ditch is a much more laborious

business, and has in it not a little of the element of speculation. Thus, if one happens to strike the middle instead of the edge, one may have to go down 5 or 6 feet before one's eyes are rejoiced by the blackish patches that denote decayed vegetation and give the necessary assurance that one is really in the footsteps of the legionaries. Many blanks, too, may have to be drawn before one lights upon a prize, while at the best the indication of future direction which is gained is uncomfortably vague as compared with the much more helpful conclusions that are yielded by the accurately laid kerbs of the stone foundation. When working by the Ditch, one has an unpleasant sense of having to grope one's way. *Per contra*, the satisfaction that attends success has a correspondingly keener edge.

Of course no map constructed by the aid of the methods I have been describing could claim to be absolutely accurate. We know, from what is still to be seen at the points where the barrier survives in tolerable completeness, that, while the dimensions of the stone foundation are fairly constant, the Ditch varied somewhat in breadth, as also—and to a much greater extent—did its distance from the northern face of the Wall. Interesting examples of such variation are carefully registered in the Glasgow Society's *Report*. For practical purposes, however, it was necessary to fix an average, and in the maps which Mr Mathieson has laid down under my direction, and which have now been adopted by the Ordnance Survey as their permanent record, it has been assumed that the Ditch itself was always 40 feet wide, and that its southern lip was always 20 feet away from the northern kerb of the Wall. I have over and over again found that these averages approximate very closely to actuality. At the most they can never be more than a very few feet astray. Bearing this *caveat* in mind, let us see what measure of progress has been achieved in each of the three sections where the work done approaches most nearly to completeness. It will be convenient to proceed in the traditional order—that is, from west to east.

I. FROM OLD KILPATRICK TO DUNTOCHER.¹

Ever since people began to write about the Roman Wall, there has been a certain amount of doubt as to the precise point at which its western extremity touched the Clyde. Horsley and others long ago balanced the *pros* and *cons* as between Dumbarton and Bowling and

¹ In connection with this portion of the line my best thanks are due to the proprietor of the land, Mr W. A. Baird of Lennoxlove, and to his tenants, Mr James Cadzow (Gavinburn), Mr James Filshie (Mount Pleasant), Mr J. M'Laren (Carleith), and Mr J. Jamieson (Wester Duntiglennan).

Old Kilpatrick. The opinion in favour of Old Kilpatrick has grown with the lapse of years, and for some time past the green knoll just opposite Gavinburn Public School has been generally regarded as the site of the fort that once stood sentinel over the river. Hitherto, however, there has been a lack of convincing evidence. None of the earlier observers could find any trace of Wall or Ditch upon the surface for some distance eastwards from the town. Roy's line, for instance, stops abruptly at the Sandyford Burn. As can be seen from the hatched markings on the map (Plate I. A), the Ordnance Survey officers who went over the ground in the nineties believed that they had located a fragment of the Ditch in the field (No. 425) that lies immediately to the west of the streamlet I have named. It seemed to them to be pointing straight for the church of Old Kilpatrick, very much as Roy said a hundred and fifty years ago that he thought the Roman Wall must have done. In 1911 I ventured to suggest¹ that the hollow in question was not the Ditch at all but a natural depression, and that the true line must be looked for somewhere in the neighbourhood of the farmhouse of Mount Pleasant, which stands a good deal higher up the hill. Here, then, trenching appeared to be eminently desirable.

The view just mentioned was based upon information I had received from Mr John M'Intosh as to a mysterious subsidence which had taken place many years ago in a wall of one of the outbuildings of the farm. Mr M'Intosh was certain that the subsidence was due to the foundation having been laid on the filled-up Roman Ditch, and on investigation I was satisfied that he was right. In the autumn of 1913 Mr Filshie, the tenant, when I opened communications with him about digging, informed me that the dryness of the preceding summer had brought confirmation of Mr M'Intosh's hypothesis as to the real whereabouts of the Wall. A portion of the field directly north-west of the farmhouse had been under crop, and as harvest approached there became visible a distinct line along which the corn grew much higher than in the parched soil on either side of it. Obviously the reserve of moisture in the Roman Ditch was responsible.

Acting on this hint, we began our search for the old frontier line close to the eastern side of the hedge that separates the field numbered 355 from that numbered 342. No sign of the stone foundation was discoverable, but after one or two false starts we eventually found ourselves on what seemed to be the southern lip of the Ditch, and were able to clear a sufficient length of the slope to make certain there was no mistake. Crossing over into Field No. 342, which belongs

¹ *Roman Wall*, p. 111.

to the farm of Gavinburn, we again succeeded in striking the southern lip of the Ditch, this time in a trench almost due west from our earlier one. It followed that, if our starting-point in the sunk wall of the farm building was correct, there must be a bend very close to the spot where we were standing—in other words, that the line, having reached the summit of the high ground, was now about to swing round in order to reach the river. This turned out to be the case. But the bend proved to be considerably greater than we had been at first inclined to suppose. A good many disappointments awaited us before we were able to lay down the track as it is shown on the map, and these disappointments were invariably due to a tendency to work too far towards the north. Ultimately, however, the Ditch was got at intervals in four trenches in Field No. 342 and in two trenches in Field No. 340, the last trench being close to the railway line; while our diagnosis of the Ditch was confirmed in the case of the second last by the finding of one or two kerbstones of the Wall still *in situ* just at the proper distance to the south. To sum up, the line once followed by the Wall (as a glance at the map will show) passes out of Field No. 355 at a point about 230 feet south of the N.E. corner of Field No. 342, continues in the same direction for some 60 feet beyond the hedge, and then swerves very markedly towards the left, to run almost straight to the railway embankment. The point at which it quits Field No. 342 is about 80 feet south of the N.E. corner of Field No. 340, while its disappearance beneath the embankment takes place about 135 feet west of the bridge that carries the railway line over the farm road.

At the railway embankment it was decided to call a halt. The field beyond was in young grass, and it seemed hardly fair to tax the farmer's good nature by suggesting that he should allow the surface to be broken. There was nothing for it but to turn our faces eastwards again. Expectations had, however, been raised high by the manner in which the frontier line suddenly abandons all pretence of being a defensive structure. When it traverses the farm buildings, it is climbing steadily towards the top of a ridge. In due course it reaches the summit, but instead of proceeding along the top for two or three hundred yards further, as it might quite easily have done, it swings round and descends obliquely along the face of a slope so steep that occasionally the top of the Wall can hardly have been above the level of the upper edge of the Ditch. It was clear that the soldiers had by this time almost completed their task, and that they were now making the shortest possible cut for home. The fort for which they were heading could not be far away, and there was good reason to hope that we should be

able to learn something as to its situation when operations could be resumed beyond the railway. The photograph reproduced as fig. 1 will show that we had at least succeeded in tracing the Roman Wall to within measurable distance of the banks of the Clyde. I owe it, as I do the rest of the illustrations to this and the following section, to the never-failing kindness of Mr John Annan.¹ It is taken from a point in Field No. 342 a little below the actual line of Wall and Ditch. The knoll which has usually been identified as the site of the fort

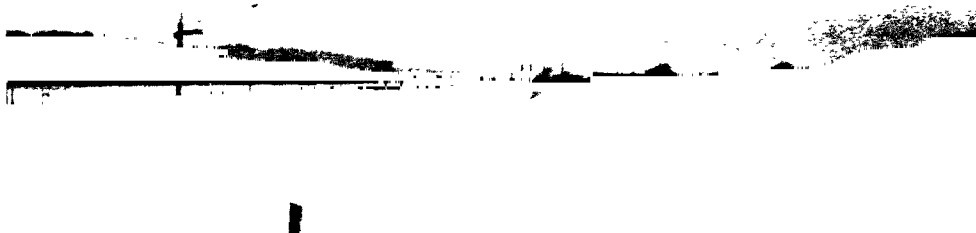


Fig. 1. The western end of the Roman Wall adjacent to the Clyde at Old Kilpatrick.

lies immediately to the left of the school, on the other side of the public road.

Compelled, as it seemed, to face eastwards, we returned to Field No. 355, and finally confirmed the accuracy of the original index by finding the Ditch at two points between the hedge separating this field from Field No. 342 and the subsidence in the farm building. The second of these points was close to the wall of the stackyard, and opposite to it we again discovered some fragmentary remains of the stone foundation. As is plain from the map, the line worked out precisely

¹ The only exception is fig. 6, which is from a photograph by Mr A. O. Curle.

as we had anticipated. The damaged portion of the steading proved to have been founded almost directly above what had been the deepest part of the Ditch. Field No. 425, which was next tackled, turned out a very difficult nut to crack, and our results are perhaps not quite so reliable there as they are in other places. There had apparently been a good deal of levelling in its upper or western half, so that not only the stone foundation but a substantial piece of the Ditch as well had been carried bodily away. In a very literal sense this greatly narrowed the possibilities of evidence being secured. Just about the spot where the bend becomes obvious upon the map, for instance, no fewer than eighteen trenches had to be dug before we were satisfied that the Ditch had been located. Nor is the bend itself at all easy to explain. Probably the extensive disturbance of the original surface has obliterated the clue. The most that is open to us is to note that the line is once more passing obliquely along a hillside, descending this time mainly towards the east, in order to reach the bottom of the valley through which runs the little streamlet known as the Sandyford Burn.

The Sandyford Burn is crossed close to the southernmost angle of Field No. 428. Thereafter we encountered practically no obstacle for fully a mile and a quarter eastwards. For nearly one-half of that distance surface indications were occasionally available for guidance. It will be noted that, from the western edge of Field No. 429 onwards, the Ordnance Survey of the "nineties" is at first almost absolutely correct: there is virtual coincidence between the red dotted lines and the earlier hatching. And the dotted lines are not conjectural. They were determined by test trenches dug close to the western edge of Field No. 432, close to the western edge of Field No. 434, and again in Field No. 436, where the farm of Carleith begins. To make assurance doubly sure, we tried for the stone foundation in Field No. 434, and were fortunate enough to hit upon part of the northern kerb *in situ* just 23 feet south of where we struck the Ditch. It is more than likely that an exhaustive search would disclose many similar isolated fragments. In this section of the line the work of destruction seems to have been accidental, not systematic and deliberate, as it has sometimes been elsewhere. What happened in Field No. 432 in December, 1909, was typical of the gradual process of attrition that has been going on for centuries. On that occasion the plough was driven rather deeper than had been usual, and as a consequence quite a number of the hammer-dressed kerbstones were thrown up to the surface, to be carted away presently as dangerous encumbrances.¹

In Field No. 440 trenching was found to be unnecessary, for the

¹ *Roman Wall*, p. 112.

track of the Ditch is discernible almost from end to end in the form of a faint depression. Within the enclosure numbered 442 it is more than a mere depression; it is a quite unmistakable hollow, the centre of which reaches the higher level on which the farm road runs about 140 feet north of the corner. This hollow seems to have been variously interpreted by the earlier observers. Gordon and Horsley write as if they supposed it to represent the Military Way. Roy and Stuart more correctly accept it as indicating the remains of the Ditch. For a considerable distance farther east all four have gone somewhat astray. As the Ordnance Surveyors unwittingly took the same course, the mistake is perpetuated by the hatched markings on their map. It will be observed that these incline sharply to the right after crossing the farm road leading to Carleith, and that they continue to hug the road to Duntocher more or less closely thereafter. The clue to the error lies on the summit of the rising-ground at the upper or northern ends of the fields numbered 455 and 452, where a deep hollow running east and west on the crest of the hill has been universally supposed to be part of the Ditch. Writing in 1911, I gave reasons for declining to accept this view,¹ and the doubts then expressed have been amply borne out by the present investigation.

After consultation with the tenant of Carleith, Mr John M'Laren, who was able to point out certain spots in the neighbourhood of which unforeseen obstructions had been encountered in ploughing or in draining, several trial trenches were cut from north to south along the eastern edge of Field No. 443, the outcome being that the Ditch was laid open about 250 feet from the S.E. corner, close to a prominent thorn-bush. Once this point of vantage had been gained, the problem of further progress was greatly simplified. A backward glance showed that Wall and Ditch had been pursuing a perfectly straight course; even in Field No. 443 the faint depression became visible so soon as one knew where to look for it. A careful examination of the stretch of ground that lay ahead failed to reveal any reasons for expecting a deviation in the immediate future. Accordingly a ruler was placed upon the map, and the workmen were directed to dig on the eastern edges of Fields Nos. 445 and 449, at a distance from the S.E. corner of 130 feet in the former case and 250 feet in the latter. It was satisfactory to find that the policy of the Roman engineers had not been misunderstood. In both cases the Ditch was hit upon at the very first attempt. It should be mentioned that in quitting Field No. 445 we passed from the farm of Carleith to the farm of Wester Duntiglennan.

¹ *Roman Wall*, p. 113.

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Field No. 506 brought complications. The Golden Hill above Duntocher, long known as the site of one of the frontier forts, was now well in view, and it was quite obvious that the ruler, which had been such a useful guide for the last 600 or 700 yards, would have to be thrown aside. There must be a turn almost immediately. Moreover, the surface of the field itself suggested difficulties, its southern end being occupied by a slight, though quite perceptible, elevation of somewhat irregular outline. Our good fortune, however, did not desert us. We were lucky enough to find not only the Ditch but also the kerbing of the Wall, each in two different places; and by keeping hold of the double thread we managed to carry the line round the awkward bend which appears upon the map, a bend due to the configuration of the ground—in other words, to the desire of the builders to utilise the slight elevation mentioned above. The middle of the Ditch leaves Field No. 506 about 140 feet north of the beginning of the road that leads to the farm of Wester Duntiglennan.

Following up our advantage, and crossing the road into Field No. 652, we were at once confronted by a well-preserved fragment of the Ditch, which seems to have escaped the notice of all previous observers, with the doubtful exceptions of Horsley and Maitland. It has been cut in the bottom of a natural ravine, and so looks very much like what is called in the vernacular a “sheugh”—a circumstance which in all probability explains why its true character has remained unrecognised. The northern face of the ravine is far higher and far steeper than the southern one, which indeed it completely commands. And the idea that the Roman Wall could ever be placed in a position where it was thoroughly dominated from the side of the Caledonians was incompatible with the common view of it as a structure which was designed with a single eye to protection against assault, and every yard of which was meant to be defended as obstinately as are the trenches of the rival armies in Flanders to-day.

The identification of the modern “sheugh” with the Roman Ditch was aptly confirmed by the discovery *in situ*, a little to the south of it, of part of the north kerb of the stone foundation. One could then advance with confidence to the point where the hollow is seen to leave the field and begin its gentle descent to the edge of the Duntocher Burn. Here the line becomes conjectural, for digging in the gardens of the houses was impracticable. At the same time the limits of possible error are so small as to be negligible. The general direction is not open to doubt in face of the marked surface indications which speedily present themselves on the opposite bank of the stream. As the Ditch climbs the steep declivity, its outline grows



more and more strongly pronounced until finally the summit of the hill is reached, and with it the site of the fort. In regard to this last it should be noted that the hatching of the Ordnance Surveyors is to be considered as provisional only. Without excavation the dimensions cannot be laid down even approximately.

When one turned to plot out on the map the result of the measurements made upon the ground, it was a great satisfaction to observe that the line as now determined ran close to the spot where, according to the Ordnance Survey records, a "legionary stone" had been found. The stone was evidently one of the well-known distance-slabs, in all likelihood No. 1138 in *C.I.L.*, vii.,¹ and the fact that it had been brought to light at this particular point afforded fresh corroboration of the soundness of the methods we had been employing. On the other hand, it is worth remarking further that the so-called Roman Bridge is not only not Roman, but does not even occupy the place that must once have belonged to the structure that carried the Military Way across the burn. The belief that it did so is perhaps partly responsible for the uncertainty that has so long obscured the true direction of Wall and Ditch at Duntocher. As a matter of fact, the existing bridge traverses the real frontier line diagonally. It may be that, as Roy suggests, some of "the stones whereof it is executed" are of Roman workmanship and "probably taken from the adjoining fort."² What is now beyond question is that the Roman Bridge proper must have been situated about 30 yards lower down the stream and must have lain at a very different angle.

The morning of Christmas 1913 saw the exposure of that part of the stone foundation which was discovered in Field No. 652. The same afternoon put us in possession of a very valuable clue at the opposite end of the section. It will be remembered that our progress at Old Kilpatrick had been interrupted through our reluctance to encroach on a field of young grass (No. 339 on the map) lying just beyond the railway line. Meanwhile, however, a letter of thanks to the farmer, Mr James Cadzow, conveying a hint of possible favours to come after the hay crop had been gathered in, had elicited a prompt reply to the effect that, if we were going to do as little damage to the young grass as we had done to the old, there was no reason why we should not begin work immediately. This kindness was most opportune. As will be seen presently, the rapidity with which success was attained was largely due to the particular season of the year in which the search was undertaken. It owed much to the pioneer labours of the plough.

¹ *Roman Wall*, p. 280, No. 7.

² *Military Antiquities*, p. 158.

I had already spent the last hour or two of daylight on a wet and foggy November afternoon in trenching for the Ditch about the point where it might be expected to emerge from beneath the railway embankment and enter Field No. 339. It was not altogether an easy matter to get it. Ultimately, however, it was found, proceeding apparently very much along the line it had recently been following. It looked as if it would not be difficult to trace it further. Accordingly, when we finished at Duntocher on Christmas morning and were able to return to the western extremity, I set the men to dig at intervals along the southern edge of Field No. 339 within an area where they could hardly fail to strike it, unless its course had been materially changed. The direct result was disappointing. None of the trenches yielded anything very definite. But, while I was watching their output, my attention was attracted by one or two very large stones lying on the newly ploughed surface of Field No. 338, which stretches between the public road and the canal, and looks across the latter to the Clyde. Closer examination showed them to be roughly dressed with the hammer, in fact to be extraordinarily like the kerbstones which were regularly used in constructing the foundation of the Wall. At the same time their position was puzzling. They were freshly turned up, and yet they lay a considerable distance east of where we supposed that the frontier line must run. The ploughman, on being questioned, explained that they had not been moved since his plough tore them from their original bed, and that there were others very like them still underneath the surface. In particular, some little way to the west and just beyond the brow of the hill he had encountered an obstruction which defied all his efforts to move it: he thought it must be "the foond o' a hoose." This information sounded most promising. The workmen were told to abandon Field No. 339 and to concentrate their efforts on Field No. 338, clearing first of all what had been described as the foundation of a house, and thereafter some of the ground in the immediate neighbourhood of the isolated stones.

When I reached the scene next morning, the first part of this task had been completed, and there lay exposed a quite unmistakable fragment of the foundation of the Roman Wall, running north-east and south-west, and consisting of two kerbstones, still *in situ*, with a mass of the smaller stones behind them (fig. 2). The larger of the two kerbstones was 20 inches long by 19 inches broad by 9 inches deep, and the whole formed a solid block 5 feet 9 inches wide. Then came a gap of a foot, and then 2 feet more of the centre packing. All the rest, including the kerbs on the further, or inner, side had disappeared. A smaller though equally recognisable fragment was discovered, by dint



Fig. 2. Remains of the western rampart of the fort of Old Kilpatrick, with the farmhouse of Mount Pleasant in the distance.

of probing, on the same line, but rather nearer the river. The general situation was by this time clear. The isolated stones were a good deal further east and also quite close to the public road; if they indicated a foundation running at right angles to the other, then the "foond o' a hoose" undoubtedly represented not merely the Roman Wall but also the western rampart of the long-lost Roman fort.

A careful inspection of their surroundings proved that the stones were not so isolated as had been at first supposed. As a matter of fact, they were an index to a stream of smaller stones which could be plainly traced along a line that was roughly parallel to that of the public road. The stream, which was visible for some 30 yards, was obviously the débris of a foundation that had been gradually broken up and destroyed by the plough. There was virtually no hope that any of it had been left undisturbed. But trial trenches were dug at selected spots, and a sufficient number of kerbstones uncovered—one or two still *in situ*, the majority displaced—to afford the amplest confirmation of our working hypothesis. Once satisfied that we had located the fort, we next set about endeavouring to ascertain its probable dimensions. By producing to a meeting-point the two sides on which we had already lighted—the west and the north—we were able to determine approximately the north-west corner. A few trenches, dug at what seemed a suitable distance away from the large fragment of the west rampart, soon took us into the ditch by which the front of the fort had been defended, this being presumably a continuation of the main Ditch of the frontier line. Thereafter we worked right across the field from north to south, beginning at that part of the ditch which was opposite the north-west corner of the rampart, and digging at such short intervals that there was no danger of losing touch, until we reached a spot where the dark earth and decayed vegetable matter gave way to virgin sand. Then we knew that we were at the end of the Roman Wall (fig. 3).

Next day—Saturday, December 27th,—was the last I could spare for the work at this particular time. Unfortunately the weather was so bad that it could hardly have been worse. It was blowing half a gale, the field was partially flooded, and wild showers of sleet and snow made digging almost impossible. Such trenching as was practicable was done at and about the south-west corner of the fort; its results went to verify the conclusions arrived at on the previous day, and incidentally to suggest that the ditch in front of the west rampart had been at least double. The lulls in the storm were, however, chiefly utilised for the taking of measurements. A survey carried out under such unfavourable conditions and carried out, moreover, by amateurs—

for Mr Mathieson's assistance was not available — was bound to be somewhat rough. Still, it was correct enough to serve, subject to the warning that, as no search could be made for the eastern limit of the fort, the line representing this on the map is perforce conjectural and the interior area correspondingly indeterminate.

It will be seen from the map that the site is some little way higher up the river than had generally been supposed, and that the fort looks north-west, the rampart on this side being about 400 feet long. No doubt the ordinary view as to its position is partly to be accounted for



Fig. 3. The western end of the Roman Wall. The Clyde from the fort at Old Kilpatrick.

by the comparatively recent limitation of the name "Chapel Hill" to the green knoll opposite Gavinburn School; it is upon the "Chapel Hill" that the inscribed stones found in the seventeenth century are said by the older writers to have been discovered. As a matter of fact, however, even within living memory the term was applied to a much wider extent of ground, including the very spot in which the remains of the ramparts have now come to light. And there is another tradition that fits in admirably with the situation of the fort as now finally identified. When the canal to Bowling was being constructed in 1790, the workmen accidentally cut through what had evidently been a set of baths belonging to the Roman station. It has always been said that the discovery took place not far from the little group of houses known as the Ferry Dike. It will be observed that such a position would be singularly suitable. The baths would, as usual, be outside the ramparts,

but would at the same time be well within the limits of an annexe lying between the fort and the river.

The sudden bend which the frontier line makes as it approaches the Clyde is very remarkable. It had been sufficiently noticeable in Fields No. 342 and No. 340, where, however, it can be readily accounted for by a desire to reach the plateau above the river-bank. The manner in which it becomes accentuated in Field No. 339 is far harder to explain. It is dangerous to dogmatise in these matters. But one cannot help suspecting that the builders of the Wall, who worked (as I have shown elsewhere¹) from east to west, altered their direction at the very last stage of their journey in order that their terminal fort might stand just where Agricola's had stood more than half a century before. Apart from some such special reason as this, there seems to be nothing in the nature of the ground to justify the unexpected change. If the suspicion could be verified, Old Kilpatrick would fall into line with Bar Hill, Castlecary, and Rough Castle as having been occupied both in the first and in the second century of our era.

To complete the record relating to this section, it should be noted that, although the stone foundation was uncovered in several different places, the superstructure was nowhere well enough preserved to admit of any positive inferences as to its character. In no case were the black lines, with which the Glasgow Society's *Report* has made us familiar, discernible. On the other hand, there was an equally decided absence of evidence to suggest any variation in the method of construction, and we may safely conclude that here, just as in the portions examined by the Glasgow Society, the main body of the Wall had been *cæspiticious*. And this conclusion is applicable not only to the Wall, but also to the fort, where the stone foundation was exactly the same. In other words, Old Kilpatrick was defended by ramparts of turf, like Bar Hill and Rough Castle, and not by ramparts of stone, like Balmuildy and Castlecary.

II. FROM BALMUILDY TO CADDER.

Along this section—now that the outline of the fort at Balmuildy and its relation to the Antonine Wall have been so happily determined by the Glasgow Society's excavations—the mapping of the frontier line presents no serious difficulties until after it has entered the policies of Cawder House; the Ordnance Survey of the “nineties” may be accepted as adequate. Within the policies, however, the problem has long been regarded as severe. The older writers give us no help at the crucial

¹ *Roman Wall*, pp. 308 f.

point, and from what they say it is clear that Wall and Ditch had both disappeared from the surface there at least two hundred years ago. It was evident that no advance was possible without the assistance of the spade and pick. Accordingly, in the autumn of 1913, I approached the proprietor, Colonel Stirling, who not only expressed his readiness to give me every facility, but most generously offered to provide the necessary labour. His overseer, Mr George MacKinnon, took an active and interested part in the operations. When it ultimately proved desirable to pursue the investigation into the glebe,

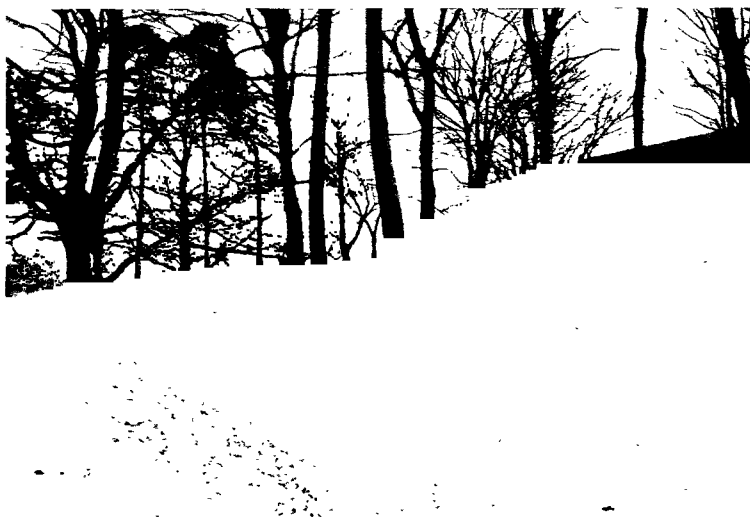


Fig. 4. Mound at Cawder House, looking E.

access was willingly granted by the parish minister, the Rev. J. Woodside Robinson.

A negative result of considerable importance should be chronicled at the outset. Successive generations of antiquaries, from Gordon downwards, have been tempted to recognise the remains of a Roman *castellum* in the fine tumulus (figs. 4 and 5¹) that stands near the eastern edge of the Cawder policies. Its obvious proximity to the Roman Wall made the temptation a natural one, and only Maitland can claim the credit of resisting it. Probably he was saved by the perversity which compelled him to reject any opinion that had commended itself to Gordon and Horsley. At all events, writing in 1757, after refuting the current view, he proceeded: "Now as this small mount seems to have been neither a castle nor a place for observation,

¹ I am indebted to Messrs MacLehose for the use of the blocks of figs. 4 and 5.

that which bids the fairest for the use it was designed for, I think, is a tom-moid or court-hill, whereon courts of justice were anciently held."¹ If the definition here is wrong, the classification is right. The tumulus is beyond all question a mote-hill. A trench cut across the ditch at the north-west corner on October 9, 1913, revealed a broad, flat bottom at a depth of no more than 2½ feet beneath the present surface, while from the lowest level came several fragments of unmistakably mediæval pottery. Mr A. O. Curle, who was present, at once recognised the phenomena as closely analogous to those he



Fig. 5. Mound at Cawder House, looking N.W.

had met with in examining the ditch of the mote of Hawick. In the eyes of some the interest attaching to the tumulus at Cawder may possibly be lessened by its transference from the sphere of Roman antiquities. If so, there are others who will welcome its definite appearance as a mediæval landmark. In his *Stirlings of Keir*, Sir William Fraser says: "About the year 1180, the lands of 'Cader' and others, were given to the Bishop of Glasgow by William the Lion for the safety of his soul. Soon afterwards the bishop appears to have feued out the lands of Cawder to Sir Alexander de Striueling, whose descendants have continued to hold them for centuries under the Bishops of Glasgow and their successors."² Sir William justly remarks that there are few families which can boast of an inheritance which has descended through so long a line of ancestors. We may now add

¹ *History of Scotland*, i. p. 180.

² *Op. cit.*, p. 6.

that among these there must be fewer still who can point to the remains of their original stronghold.

The determination of the true character of the tumulus was but an incident in a long and troublesome search for the real line of the Roman barrier. It will be seen that the hatched markings on the map (Plate I. B) branch out, not unlike the fingers of a hand, just as they approach the fence which surrounds the innermost portion of the policies. The central branch, which represents a well-defined hollow that gradually decreases



Fig. 6. The Ditch near Cawder House.

in depth as one moves eastwards (fig. 6), has obviously been interpreted by the Survey officers as the remains of the Ditch, for the hatched markings are carried on until they reach the southern edge of the road that leads from the main avenue to the outbuildings of the mansion-house. Others, among whom I am bound to include myself, have been inclined to think that the hollow was a natural one, and that the Roman engineers had kept more to the south, clinging to the face of the hill in order to reap full advantage from its lower slopes.¹ Such a line would have included the high bluff which overlooks the Bishopbriggs Burn, and which is conspicuously indicated on the map just above the number 148; and it would have been only a short step thence across the valley

¹ *Roman Wall*, p. 119.

to the rising ground on which stands the "Castellum." But this plausible *a priori* reasoning must give way to the logic of facts. The spade has proved that the Survey officers were right.

Some 54 feet east of the fence we dug a trench through the mound that forms the southern boundary of the hollow. The result was to expose not merely the stone foundation, characterised by its normal features, but also a fine section of the original superstructure, traversed at regular intervals by the black lines which betrayed its cæspiticious nature. The angle at which the kerbs were laid was, roughly, north-east by east; and, as this corresponded exactly with the direction of the hollow, there could be no further question as to the identity of hollow and Ditch. The descent to the low ground is made in the frankest and most unhesitating fashion, a line of fine trees marking its course for the greater part of the distance between fence and road. Not until the latter has been crossed is there any perceptible deviation. To put the matter beyond doubt, the ground was opened up at three points along what was presumed to be the route followed by the Wall. In each instance the stone foundation was disclosed precisely where it had been looked for.

The last of the openings just referred to was close to the southern margin of the road. By this time the surface of the ground had become to all appearance level, and it was necessary to proceed with caution if the clue was not to be lost. Trenches dug at more frequent intervals in the park to the north of the road revealed a slight turn towards the right, the easterly trend being maintained for something like 250 feet. For more than 100 of these feet the stone foundation had survived to serve as a guide. Thereafter we had to have recourse to the Ditch. Presently, however, this too gave out, leaving us for the moment completely nonplussed. The cause was obvious: when the ornamental pond was formed, large quantities of earth had been removed from some parts and laid down in others, in order to provide it with a bed and with suitably sloping banks, and the track of the Ditch was consequently no longer distinguishable.

The point at which the chain had broken was peculiarly tantalising, and of the several alternative routes from which we had to choose, that which was apparently the least promising proved in the end to be right. Wall and Ditch, at the moment of their disappearance, had seemed to be pursuing a course that might quite naturally have brought them close to the "Castellum." Accordingly, even after we had satisfied ourselves that the mound was a mediæval mote, we could not quite shake ourselves free from its influence. Many fruitless attempts to pick up a clue were made by trenching on the top and shoulders of the bluff already referred to, as well as on both sides of the flat-bottomed valley through which

the stream flows. It was hard to convince oneself that the advantages attaching to the high ground had been, as it were, deliberately thrown away. And yet that was what had actually happened. Just about the spot where they had been lost sight of, Wall and Ditch had swung towards the left and passed right across the mouth of the valley, making for the western extremity of the spur of hills that bounds it on the north. Here they had turned abruptly towards the south-east, leaving sufficient space between themselves and the foot of the slope to permit of the Military Way being laid upon the level—an arrangement which doubtless explains the detour that puzzled us so much. The adoption of any other plan would have involved the road in a toilsome series of ascents and descents.

The remains of the Military Way were found in two trenches cut in the corner of the policies that adjoins the house known as the Lodge—first about 50 feet north-east of the main avenue and about 70 feet north-west of the road that comes from the direction of the Lodge to join it, and again about 60 feet further on. In the same corner, about 40 feet in front of the Military Way, we laid bare an excellently preserved section of the stone foundation of the Wall, with a foot or two of the original superstructure still in position. The fact that this was situated well within the limits of a depression so decided that we had at first been disposed to think that it might represent the Ditch, furnished striking proof of the extent to which the contour of the ground had been artificially altered since Roman times. The evidence was more than confirmed by what awaited us in the large field immediately to the east. Incidentally it should be noted that on entering the latter we were somewhat nettled to observe that, if we had only reconnoitred a little farther ahead, we might have saved ourselves much of the useless searching that had occupied the previous day or two. The Lodge has been built above the filled-up Ditch, with the usual result that the walls have threatened to collapse. They have had to be supported by tell-tale buttresses of stone.

Within the large field (No. 158) we were able to trace the stone foundation for practically the whole way. The details here were worked out under Mr MacKinnon's supervision, the numerous sections he had secured being subsequently examined by myself and their positions taken by Mr Mathieson. At first the Wall keeps close to the foot of the long ridge or tongue of high land that includes the knoll on which the "Castellum" stands, its direction being south-easterly. It must have had a narrow escape from destruction when the road was being made. Luckily the roadmakers seem to have thought that the easiest way to deal with it was to bury it. The earth which they cleared away was shovelled on to the top. Consequently, although

the surface to-day betrays no sign either of its presence or of that of the Ditch, yet a hole 2 or 3 feet deep will reveal not only the stone foundation but also a considerable section of the layers of turf it was meant to support. About 200 yards beyond the Lodge the Wall abandons its southerly trend, and runs along the face of a slight elevation, to pass through the upper corner of Field No. 166 before reaching the canal, which it ultimately does just at the lower end of the great mound that rises on the western bank. This mound has sometimes been supposed to be part of the Wall. It was so interpreted, for instance, by the officers of the Survey.¹ In all probability it consists of soil thrown up when the canal was being constructed towards the end of the eighteenth century. And it does not represent anything like the whole of the débris from the excavations at this point; much had evidently been deposited in Field No. 166, for there the stone foundation of the Wall was found fully 5 feet below the present surface, the black lines of the turf superstructure being plainly visible in the sides of the cutting for a distance of more than 3 feet from the bottom.

We had now succeeded in bridging over the gap which we had originally set out to cross, for beyond the canal lies a long stretch where the track of the Roman frontier has always been tolerably clear. But it seemed a pity to leave Cadder without endeavouring to determine the exact position of the fort by which this part of the barrier had once been defended. Arrangements were accordingly made for a two days' search, which was much facilitated by Colonel Stirling's kindness in once more putting the necessary labour at my disposal. I could not be present myself on the first day, and was glad to be able to entrust the supervision of the workmen to the competent hands of Mr John M'Intosh, who wired me in the evening that the fort was found. In my *Roman Wall* I had brought together the various pieces of evidence from which its existence could be inferred, and had drawn from them certain conclusions as to its probable situation. I had even gone so far as to say that in all likelihood the ruins of the principia were buried somewhere in the field (No. 656) that lies between the canal and the garden of the manse.² This was the hypothesis that formed the basis of our search.

In the course of a preliminary survey Mr M'Intosh noticed a slight subsidence in the east wall of the manse garden about 123 feet from the north-east corner. Going round to the other side he found a similar subsidence in the west wall about 100 feet from the north-

¹ On the 25-inch map it is designated, "Remains of the Wall of Antoninus Pius."

² *Op. cit.*, p. 173.

west corner. Trenches were then dug in Field No. 653 along the line indicated by the subsidences, the result being to supply a striking demonstration of the value of such finger-posts. In a very short time the south ditch of the missing fort lay revealed. Its most remarkable feature was its relatively great breadth; to all appearance it had measured as much as 30 feet from lip to lip. This is fully 10 feet above the average for the ditches of the other known forts on the Wall. It must, however, be remembered that as a rule these are double. If the Cadder ditch was single, as the evidence certainly suggested, that fact alone might suffice to account for its exceptional size. An alternative supposition is that it may really have been not one ditch but two, separated by a midrib so slender that it had collapsed, or at all events had escaped our observation. While that is hardly probable, it is perhaps unsafe to be dogmatic, in view of the necessarily restricted character of our investigation. It will be enough to add that, so far as could be ascertained, the conditions on the east side were identical.

To discover the east ditch was, however, a much more troublesome business than might reasonably have been anticipated. In the confident expectation of striking it about the middle of its course, Mr M'Intosh had begun by having a short trench cut north and south, in a carefully selected spot, some 75 feet north of the hedge that divides Field No. 656 from Field No. 653. To his great disappointment the soil showed no sign of ever having been disturbed. A series of similar trenches cut at frequent intervals along the same line, first for a short distance towards the west, and then for a much longer distance towards the east, proved equally unfruitful, and it looked as if there was something seriously amiss with the reckoning. This was the position when I arrived on the second day. Mr M'Intosh had by that time decided to return to Field No. 653 and endeavour to pick up the ditch nearer to what he believed to be the south-east corner. The venture was successful at once. The ditch was located not far from the hedge, exactly where it had been originally calculated that it ought to have run. This being so, there could only be one explanation of the previous failure to find it. The first attempt must have been made at a point where it had never been dug at all—in other words, on the piece of solid ground that had been left in front of the gate of the fort. This hypothesis was verified by a fresh visit to Field No. 656, when the ditch was cleared out on either side of what had formerly been the road. The gap was only about 11 feet wide. If the road were the Military Way, this would be exceptionally narrow. It is, however, quite possible that at Cadder—as during the second period at Rough

Castle¹—the Military Way did not pass through the fort from west to east, but ran on the south side of it to avoid a steep gradient. At Barhill, where (for a different reason) it ran on the north side, the branch roads leading to the north and east gates were much narrower than the Military Way itself.

We had now sufficient data to map the fort out roughly. We had recovered the line of the defences on the south and on the east, while we knew that on the north it must have been merged in the great Wall and Ditch. Nor was there much room for doubt as to the west. The subsidence in the west wall of the manse garden indicated that the south ditch had passed beneath it. On the other hand, it could not have extended far beyond, for the edge of the plateau is reached almost immediately. We therefore felt justified in trusting to conjecture, all the more because a search might not improbably have been inconclusive owing to the changes that had been effected when the canal was being dug. Against this may be set the momentarily annoying, though really very fortunate, accident that enabled us to fix the site of the east gate. The west gate must have been directly opposite, while the north and south sides would have gates as nearly as possible in the middle. At one point in Field No. 653 we came upon what appeared to be remains of the rampart. They were very fragmentary; but, such as they were, they suggested a wall of turf rather than a wall of stone, with a berm of about 10 feet in width. The interior area of the fort may be put down at a little under 3 acres. Centuries of cultivation have obliterated the handiwork of its occupants with more than usual completeness. A hearth was exposed in one of our trenches, and here and there we picked up stray pieces of coarse pottery, including an amphora handle. Finally, not far from the eastern end of Field No. 656, at the point indicated by a small cross on the map, we encountered, but did not follow up, another ditch, indicative perhaps of an annexe.

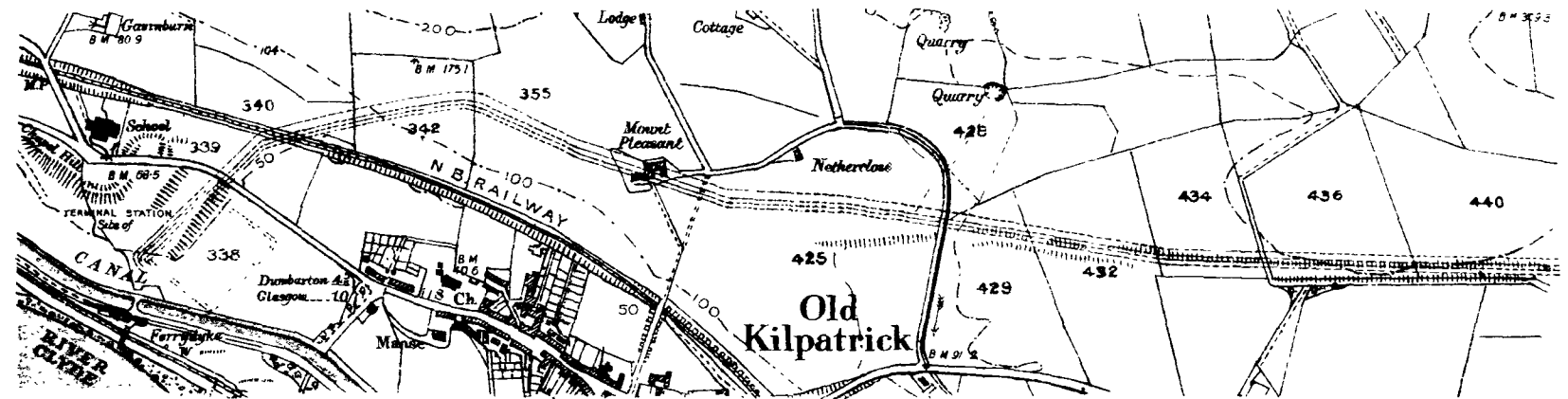
III. FROM FALKIRK TO INVERAVON.²

It will conduce to clearness if, in dealing with the third section, we proceed, so to say, geographically rather than historically. It covers a

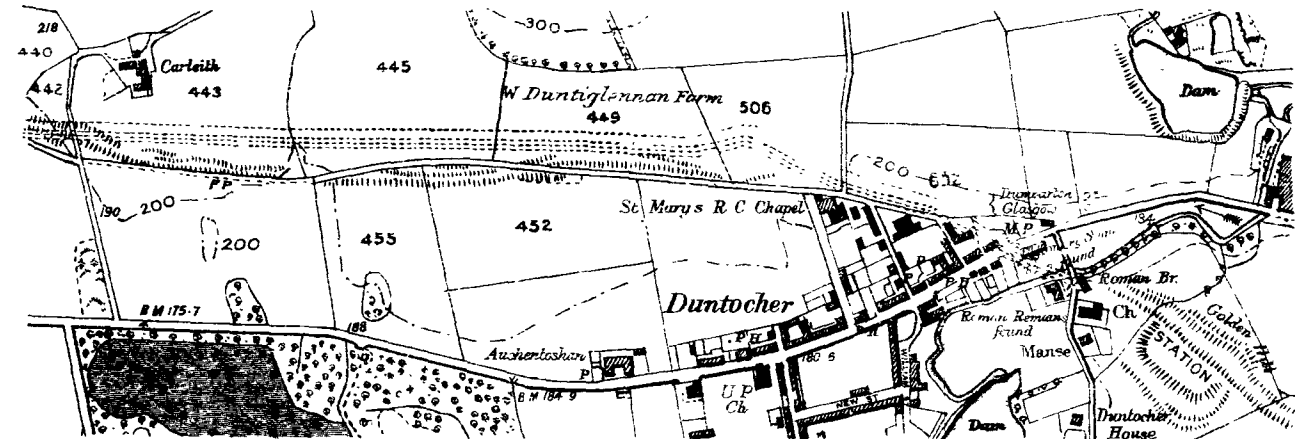
¹ *Roman Wall*, p. 229.

² My best thanks are here due to the following proprietors or representatives of proprietors:—Mr William M'Lintock, C.A., Glasgow; Mr Robert Baird, Falkirk; the late Mr William Forbes of Callendar; Mr Charles Brown, factor for the Marquis of Zetland; Mr John Colville, Polmont Park; Mr T. Douglas Wallace, chamberlain on the Hamilton Estates; and Mr James Young, resident factor at Kinneil. Also to the following occupiers or tenants:—Rev. T. Marshall Pryde, Rosehall; Messrs Ramsay, Laurieston; Mr Samuel Smith, Mumrills; Mr William Wilson, Polmont; Rev. J. Buchanan Mackenzie, Polmont; Mr A. Caldwell, Polmont; and Mr W. Meikle, Polmonthill.

A. THE ROMAN WALL FROM THE CLYDE TO DUNTOCHER.



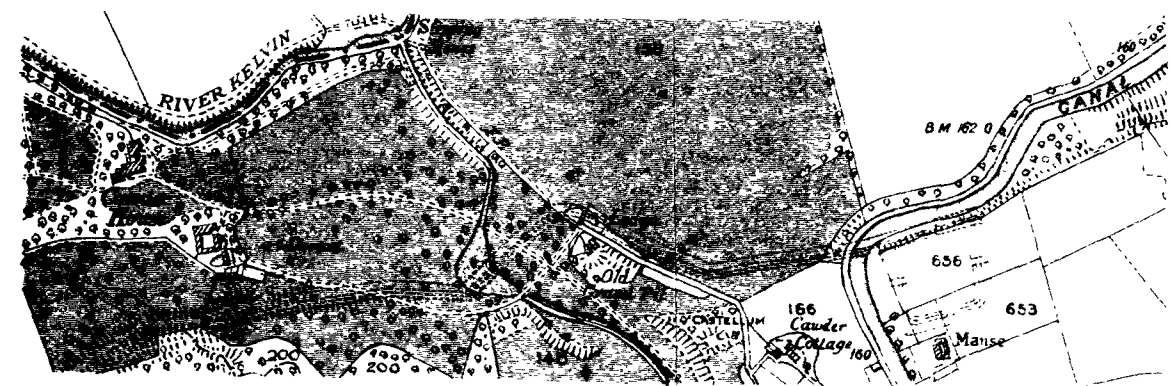
(From the CLYDE to CARLEITH)



(From CARLEITH to DUNTOCHER)

The background has been reproduced from Ordnance Survey Maps with the sanction of the Controller of H.M. Stationery Office.

B. THE ROMAN WALL AT CAWDER HOUSE.



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stretch of some four miles, and the work of exploration had to be carried on now at one portion, now at another, as the season of the year and the state of the ground permitted. A simple narrative would consequently be confusing. On the other hand, it will be convenient to begin with a brief account of the circumstances that first drew my attention to this particular part of the line as a hopeful area of investigation. They included a discovery which threw a new and interesting light upon the structure of the Wall.

About midway between Falkirk and Inveravon, and a little way east of the village of Laurieston, lies the farm of Mumrills, in the immediate neighbourhood of which it has long been suspected that a Roman fort had once existed. In my *Roman Wall* I expressed the belief that this fort should be looked for in the field numbered 2106 on the Survey map (Plate IV.), adding that if a look-out were kept when ploughing was going on, many relics might be found.¹ I had discussed the possibilities more than once with Mr James Smith, the son of the tenant, who was soon every whit as keen as I was myself to get the problem definitely settled, and the very next spring, February 1912, he was able to send me word that he had discovered, not only fragments of pottery and glass, but also the foundations of what was obviously an ancient building. He had wisely communicated with our Corresponding Member, Mr Mungo Buchanan, who had had large experience of Roman work at Camelton, Castlecary, and Rough Castle, and with his assistance he had cleared away enough of the soil to enable a judgment to be formed. When I visited the spot, I could only confirm the conclusion at which Mr Buchanan had already arrived. Two lines of foundation had been laid bare, meeting at a right angle. The one on the north had been traced for 25 feet, the one on the east for $11\frac{1}{2}$.² They were from 33 to 36 inches wide, and had been carefully bedded in puddled clay after the usual Roman manner. Broken bricks and roofing-tiles were abundant, and there were one or two pieces of "Samian" ware. The position of the remains, some 300 or 350 feet back from the centre of the public road, suggested that they represented a portion of the principia or headquarters building, and this suggestion appears to be corroborated by all that we subsequently learned as to the size of the fort and the precise whereabouts of its ramparts. In another part of the field there was found the pillar of a hypocaust, lying amid what seemed to be the débris of a furnace.

¹ *Op. cit.*, p. 240.

² The north wall was subsequently traced for 15 feet beyond the junction in an easterly direction (see fig. 7). If, then, as is suggested below, this wall represents the north wall of the principia, there must have been an "Exerzierhalle," or portico, thrown over the Via Principalis in front, as at Newstead.

Sowing followed hard on ploughing, so that there was no time to pursue the inquiry further, even if the means for a more thorough excavation had been available. It was, however, arranged that, after the crop had been gathered in in autumn, I should be allowed the "run" of the field for a few days in order to make a closer examination. When the date fixed for this reconnoitring expedition had come round, it seemed best to restrict our efforts to an endeavour to establish the exact situation and limits of the fort, and to postpone any attempt at learning more about the central building until exploration on a really systematic plan could be undertaken. Fragmentary as was the knowledge we had acquired of the principia, it was enough to supply us with a starting-point. And it had contained an element of surprise which served as a useful stimulus. The walls were not lying at the angle at which we should have expected to find them, if the northern front of the fort had been in alignment with what we believed to have been the course followed by the great Rampart and Ditch as they approached Mumrills from the west.

Work was begun about the middle of November, 1912, and in an hour or two we struck the stone foundation of the great Wall in Field No. 2106, about 200 feet south-east of the cart-shed which adjoins the road. It was running parallel to the foundation of the north wall of the principia, thus confirming our suspicion that it had changed its direction. Thinking it well to look into the change more narrowly, we left the fort alone for the time being, and dug eastwards along the line of the Wall, to find that it very soon turned somewhat abruptly to the left, as if to return to the path it had so recently forsaken. Simultaneously there emerged an extremely interesting feature, which will be described in detail presently, and the investigation of which absorbed the whole of the remaining days that had been set apart for our search. The information necessary for laying down the outline of the fort was not secured until the succeeding autumn. I propose, however, to anticipate a little, and to bring together now all the facts relating to it that it has so far been possible to gather.

In November, 1913, Mr James Smith, the value of whose practical help throughout will be apparent from the narrative, determined to drive the plough a little deeper than usual in passing over certain spots which had seemed to him in previous years to be rather different from the remainder of the surface. His experiment was most successful. It brought to light the rounded south-east corner of the rampart of the fort, thus giving us at one stroke the position of two of the sides; and at the same time it supplied a reliable indication as to the whereabouts of a third by revealing at the western end of the field a line

of stones, about 15 feet broad, which had all the appearance of being a disturbed foundation. With the fourth, or northern side, we were of course already familiar. These data, when transferred to the map, disclosed a fort of the normal shape, having an interior area of about $4\frac{3}{4}$ acres. This is very considerably larger than the average of the other known forts on the Wall. Castlecary, for instance, had an area of $3\frac{1}{2}$ acres, Bar Hill of 3, and Rough Castle of no more than 1. Possibly the exceptional size of Mumrills is to be connected with the presumption, which the epigraphic evidence affords, that it was garrisoned by a regiment of cavalry. Obviously space would be needed to accommodate the horses.

However that may be, Mumrills was undoubtedly an important station. Signs of Roman occupation are unusually abundant, chiefly in the shape of broken tiles and shards of pottery. Mr Smith has picked up *débris* of the kind from all parts of the interior of the fort itself. But he notes that it does not appear to occur outside the line of the eastern rampart. On the other hand, there is much of it to be got in the large field towards the west, No. 2095 on the Survey map, and there too he has observed indications that seem to point to the presence of buried foundations. It is justifiable to infer that on this side there was an extensive annexe. And there is some reason to believe that, in spite of the absence of *débris*, there may have been occupation of a more limited kind upon the other side as well. In the spring of 1913, when ploughing the eastern half of Field No. 2106, Mr Smith encountered the remains of foundations about 200 yards beyond the rampart of the fort and not far from the edge of the steep declivity that runs down towards the Westquarter Burn. Mr Buchanan, who was fortunately able to examine them while they were still exposed, reports that they consisted chiefly of clay and rubble. At the same time there were two worked stones of fair size and good proportions, which I had myself an opportunity of seeing later on. One of them was square-dressed. The other, which had a rounded face, had evidently formed part of an apse—a circumstance which tempts one to think that the building to which it belonged may possibly have been a suite of baths. The line probably followed by the Military Way is close at hand; it can hardly have run otherwise than between the Mumrills Braes.

The site of the fort has been admirably selected. To the south, and to a less degree to the east, it is protected against any sudden attack by the declivity first mentioned, which at this point descends almost sheer to the level of the burn. The ground on the north is flat and open, excellently suited for a tactical offensive on the part

of a defending force, who had only to drive their assailants back 250 or 300 yards in order to hurl them headlong down a long slope that leads all the way to the Carse. A lesser distance would have sufficed for the purpose without appreciably weakening the position in the rear, and in these circumstances one cannot but wonder why the great Wall bends so suddenly towards the south, seeing that it makes for its former course again as soon as it is fairly clear of the eastern

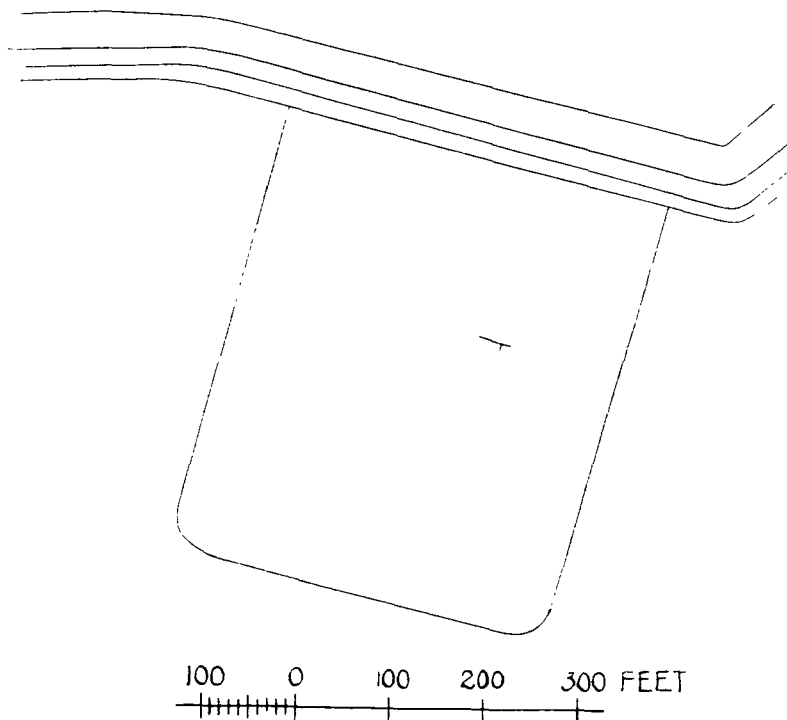


Fig. 7. Outline of the Fort at Mumrills showing its relation to the Wall.

rampart (fig. 7). It is conceivable that, as at Bar Hill, digging might furnish a clue to this departure from the normal by laying open the outline of one of Agricola's stations. The fort as we know it now is certainly Antonine. That is manifest not merely from the relation in which it stands to the Wall, but also from the character of the pottery that has been found. All of it that I have seen may be assigned to the second century. The buildings would appear to have been of the type that one would naturally expect; the more important of them at least were substantial and were roofed with red tiles. Not a few of the stones that have been quarried from them can still be

detected in the wall that supports the bank on the right-hand side of the road that leads to Beancross, while two or three fine specimens of cross-hatching have been preserved in the construction of the adjoining cart-shed.

In one important respect, however, Mumrills differed from all of the other forts on the great Wall of which anything definite is known. Its ramparts were of earth—not of stone, like those of Castlecary and Balmuilly; nor of turf, like those of Bar Hill and Rough Castle. In order to make the grounds for this statement clear, it will be necessary to resume the story of the week's digging that was done in November, 1912; I indicated that, at an early period of this, the emergence of an extremely interesting feature had led us to abandon our original plan of campaign and concentrate our attention on the Wall. Where we first lighted upon it, the stone foundation proved to be singularly well preserved. In all essentials it conformed strictly to the description given in the Glasgow Archæological Society's *Report*, and the variations in breadth were slight, ranging from 14 feet 6 inches to 15 feet 9 inches as a maximum. The uniformity of construction in different parts of the isthmus was further emphasised by the discovery of a conduit (fig. 8¹) which bore a close resemblance to those that have been from time to time laid bare in the western half. But the similarity which was so apparent in the foundation did not extend to the superstructure. Although there was no indication that the soil immediately above the stones had been in any way disturbed, it was in vain that the face of one section after another was scanned for traces of the black lines with which the experience of the west had made us all familiar. There was literally nothing to suggest that the body of the Wall had been cæspiticious, in spite of the fact that a considerable proportion of it remained available for examination, the stone foundation being sometimes as much as 27 inches below the present surface.

On the other hand, we were everywhere confronted by a new phenomenon. Mixed with the brown sandy loam were large quantities of a whitish clay, which was obviously foreign to the immediate neighbourhood, and which (as I satisfied myself by inquiry) had in all probability been carried up from the Carse. This clay was not diffused at random through the native soil. It was mainly concentrated in two heaps, one at either margin of the foundation; and it had been laid directly upon the stones, the interstices between which it often filled. The greatest height to which the marginal heaps were observed to rise was 15 inches, while they generally extended inwards for a

¹ I have to thank Mr Buchanan for the photographs from which figs. 8, 9, and 10 are reproduced.

distance of about 3 feet. As a rule, there was a corresponding, but less decided, outward spread, which, however, may well have been secondary and induced by the superincumbent weight of the completed Wall. The 8 feet in the centre consisted almost entirely of earth; such stray patches of clay as showed themselves were probably accidental. In short, it was plain that the often quoted words of Julius Capitolinus—*alio*



Fig. 8. North kerb of the Wall, with conduit, near Mumrills.

muro cespiticio ducto—were not strictly applicable to this portion of the barrier. Rather it appeared that, after the stone foundation was laid, two mounds of clay had been piled up on either edge of it and used to support a wholly earthen rampart.¹ It is a remarkable circumstance that these mounds had sometimes turned out to be the most enduring part of the Wall. Towards the eastern end of Field No. 2106, for example, where the stone foundation had been torn up and carried bodily away, we were nevertheless able to trace its course with perfect confidence by following two parallel bands of whitish matter which

¹ On Croy Hill the Glasgow Committee (*Report*, pp. 49-79) noticed a somewhat similar arrangement: the sods towards the outer edges of the Wall had been cut from clayey soil.

clung persistently to the soil with an interval of 15 or 16 feet between them.

Events proved that the method of construction just described was not peculiar to the two or three hundred yards within which its existence was first detected. Along the four miles or so that lie between Falkirk and Inveravon, the line of the Wall has now been opened up at many points. Over and over again, at widely separated distances, vestiges of the clay mounds were more or less distinctly visible, while nowhere was there the slightest sign to suggest that turf had been used at all. Further, the defences of the fort at Mumrills had been reared in exactly the same fashion. Indeed, Mr Smith's success in locating the south-east corner of the ramparts was directly due to his suspicions having been aroused by the mass of clay through which the ploughshare had to cut in passing over it. The quantity of clay there was far above the average, the only other spot where the accumulation was at all comparable being immediately over that part of the great Wall which was adjacent to the corresponding north-east corner. This fact is not without significance. It was precisely at the corners that the strain on the ramparts would be heaviest, for it is as certain as anything can well be that each of them would have to bear the weight of a wooden tower. If, then, most clay was laid where most strength was required, the meaning of the clay becomes tolerably clear. Its purpose was to give stability. Occasionally stones seem to have been packed against its outer face, as if to hold it better in position.

Probably this particular way of building an earthen rampart has been noted in Roman works elsewhere, but I have not been able to lay hands on any definite example. Professor Haverfield, however, reminds me that there has lately been noticed on the English Wall, in the north mound of the Vallum, a line of matter along each side at the bottom, suggesting that, before the main mound was built, two lines were laid out along its bottom edges.¹ In some places these lines appear to be turf, as if the sods had first been cleared off and neatly laid out; that, however, would seem to have been a pointless proceeding, and in other cases no trace of sods or their lamination was observed. Such lines may have been intended to stop the earth from slipping too easily, or their object may have been merely to mark out a course for the actual builders. In the case of the Scottish Wall the latter idea must, of course, be excluded; here the alignment would be given by the stone

¹ *Cumb. and Westmor. Antiq. and Arch. Society's Transactions*, xiii. 456, and *ibid.* (N.S.), iv. 245. Mr Buchanan also drew my attention to his section of the south rampart of the 'North Camp' at Camelon (*Proceedings*, vol. xxxv. pl. iii. No. 3).

foundation, which was already in position before the clay was brought upon the scene at all. Accordingly the combination of clay and earth can only be regarded as an alternative to the turf, of which, as was conclusively demonstrated by the Glasgow Society's *Report*, the mound is composed across the greater part of the isthmus. The most likely explanation of the change of system is perhaps that, in the end of the second century of our era, the ground through which the eastern portion of the Wall ran was thickly wooded, so that suitable sods would not be readily procurable; whereas to the west of Falkirk the country was, as it is to some extent to-day, a moorland where thick grass and heather flourished. Whether this conjecture be well or ill founded, the change provides a striking warning against the danger of being too dogmatic in drawing chronological conclusions from the material of which the rampart of a fort may be constructed. In a general way it is doubtless true that *Erdkastell*, *Rasenkastell*, and *Steinkastell* succeeded one another in the order of enumeration. But it is equally true that on the Scottish Wall, which is a homogeneous work, the three types were contemporaneous.

Another discovery of some interest has to be registered before we leave Mumrills. In January, 1913, I paid a visit to it with Professor Haverfield, who happened to be spending a day or two in Edinburgh and who wished to have a look at the site of the recently identified fort. The sections cut across the great Wall in the previous autumn had been filled in as soon as we had made our notes upon them. But Mr Smith, who had been forewarned of our coming and who was anxious that we should see as much as possible, had most kindly set about digging a fresh one expressly for our benefit. The spot he had chosen was about 40 yards east of the elbow-like bend which the Wall takes to the north soon after it has quitted the precincts of the fort. When he had got a little way below the surface he was surprised to find his spade throwing up fragments of tiles and lumps of clay burnt red. Following these indications for a few feet towards the south, he presently struck the face of a well-built wall, still standing at least 2 feet high. Whatever the remains might represent, the character of the debris left no room for doubt as to their being Roman. The building did not appear to be large, and it was obviously in very fair preservation. Two or three weeks had yet to elapse before the field was required for agricultural purposes, and it seemed worth while utilising the opportunity for a closer investigation. I was too busy myself to accept responsibility for daily and constant supervision. Mr Buchanan, however, was available, and threw himself heartily into the task. I have to thank him for plans, photographs, and notes. These, supple-

mented by a certain amount of personal observation, have provided the material for the description now to be given.

The removal of 15 inches of superincumbent soil disclosed the outline of a small rectangular structure (Plates II. and III.¹) lying about 7 feet south of the great Wall, with the kerb of which it was in virtually direct alignment. It seemed to be, roughly, about 13 feet square, with walls that varied from $2\frac{1}{2}$ feet to $3\frac{1}{2}$ feet in height and from 2 feet 6 inches to 3 feet 9 inches in thickness. The variation, however, was more apparent than real. So far as height was concerned, it was to be explained by partial destruction, while it soon became evident that there was no proper basis of comparison in respect of thickness, for only the wall on the north was solid. The centre was a confused mass of burnt clay, broken bricks and tiles, and tumbled stones, conspicuous among the last being a number of more or less complete slabs such as might have belonged to a floor. When this miscellaneous gathering of rubbish had been carefully cleared away, we found ourselves in what seemed to have been originally an underground chamber about $3\frac{1}{2}$ feet high. At the top it was as nearly as possible 7 feet square, at the bottom only a little more than 5, the difference being due to a projecting scarcement on the north and to a very decided batter on east, west, and south. The wall on the north was, as already stated, solid. It was 2 feet 6 inches thick, and was pierced by an entrance 2 feet 5 inches wide. On the remaining three sides what had happened was that the excavated space had received an interior facing of stone, which inclined inwards as it rose, in order that it might offer a stronger resistance to the pressure of the surrounding earth. The delusive appearance of thick walls, which had coloured our first impressions, was caused by the occurrence, on the south and west, of what may be termed an outer boundary of stones, laid one or two courses deep upon a line of clay. At one time this boundary probably extended all the way round. What its precise purpose was, and whether it was ever any higher, we cannot now say with certainty. The most likely explanation seems to be this. The fact that the floor of the "underground" chamber was on very much the same level as the kerb of the great Wall suggests that it was not "underground" in the proper sense of the word at all, but that it was made so by heaping up a bank of earth around it. In that event the line of stones would serve as a sort of parapet, indicating perhaps the outside limits of a superstructure.

The interior was remarkable for the presence of four short walls, each about a foot wide, which jutted out opposite to one another, two

¹ These plates should be consulted throughout the following description.

on either side, for a distance of about $2\frac{1}{2}$ feet at the top. Those on the east had suffered very little damage; they are well shown in fig. 9, which gives a view of the chamber from the south-west corner. Those on the other side were much more dilapidated (fig. 10). This latter view, which is taken from the north-east corner, is also interesting for the peep it gives of the scarcements, with which the walls on the north and south sides were supplied. These scarcements were largely



Fig. 9. Roman kiln at Mumrills from the south-west corner.

torn away; that on the eastern section of the north wall had disappeared completely. We may be sure, however, that when the structure was entire they would rise to the same height as the projecting walls, and that the framework so formed was designed to support a roof (or, if looked at from above, a floor) of heavy flags. It will be remembered that the débris with which the interior was choked was partly composed of slabs of stone. As a matter of fact, one of them can be seen in fig. 10 lying to the right on the top of the west wall. One point more. The whole of the inside bore manifest traces of having been exposed to intense heat. The stones were dis-

coloured, and the clay that had been used to fill the interstices between them was burned as hard as brick, while the floor for several inches downwards, particularly in and about the entrance, was a compact mass of soot or wood ashes, a broad band of which also extended for some distance outside in the direction of the great Wall.

These being the conditions, the riddle was not difficult to read. The chamber was the furnace of a kiln. The wonderful potteries

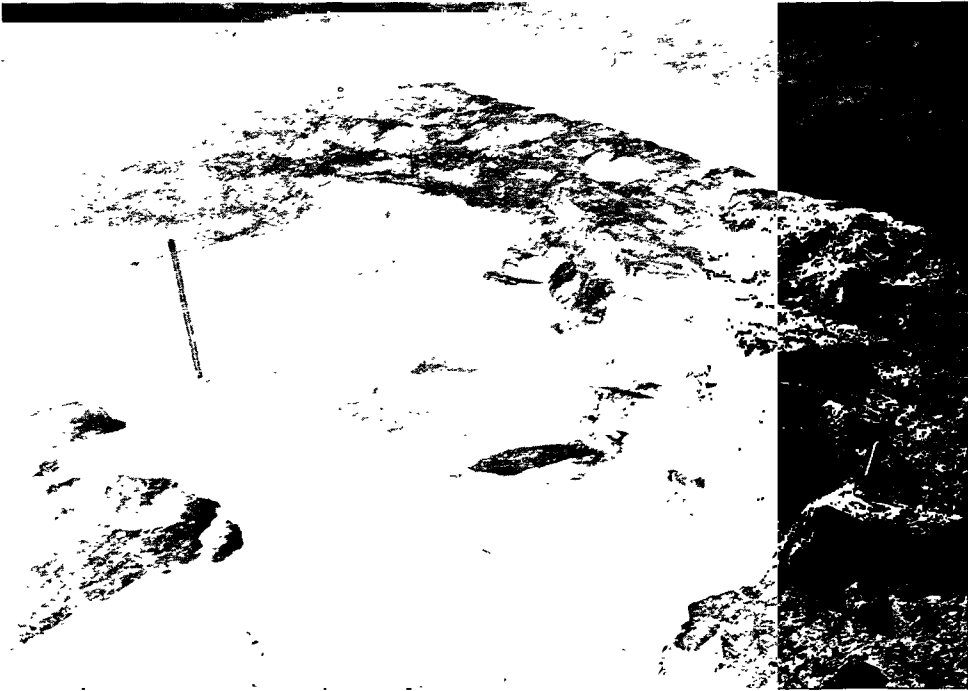


Fig. 10. Roman kiln at Mumrills from the north-east corner.

lately discovered by Mr Arthur Acton near Wrexham are on too elaborate a scale to be of much assistance in interpreting this humble centre of industry among the frontier wilds.¹ Continental analogies are more helpful, notably one of a group in Alsace that was described some years ago by Forrer.² It is rather larger ($7\frac{1}{3}$ m. \times 5 m.) than the Mumrills building, to which in other respects it offers a striking

¹ I am indebted to Mr Acton for a most interesting series of photographs. Some account of Mr Acton's remarkable discoveries will be found in Professor Haverfield's *Roman Britain in 1914*.

² *Die römischen Terrasigillata-Töpfereien von Heiligenberg-Dinnsheim und Ittenweiler in Elsass* (Stuttgart, 1911), pl. vii. and figs. 26 and 27 (p. 50).

resemblance. The chief differences are that, being larger, it has three projecting walls on either side, and that the entrance is flanked by cheeks which jut outwards and were doubtless intended to increase the draught. A neat little pottery kiln at Corbridge, a plan of which Mr Knowles was good enough to send me, is also instructive. Most illuminating of all, however, is an example found many years ago near Colchester, and figured and described by Mr George Joslin in vol. vii. of Roach Smith's *Collectanea Antiqua*.¹ Except that it is oblong in shape and slightly smaller, the ground-plan of the interior is almost identical with that of the chamber at Mumrills. But the method of construction was different. The side walls and the roof of the furnace were made, not of stone, but "of clay in the form of bricks of various sizes," and the interior had been "vitrified by the intense heat, forming it into one mass, so that it is difficult to distinguish the brick from the joint."² The roof was pierced by a series of holes, two inches in diameter, which carried the hot air up into the body of the kiln, distributing it in such a way as to secure uniformity of temperature.

Some similar means of communication between furnace and kiln must have existed at Mumrills, although the ruinous state of the remains prevented us from detecting it. As regards the character of the kiln itself, we can only indulge in conjecture. It is, however, far from improbable that there was no permanent superstructure. If so, when a sufficient quantity of bricks or tiles had been prepared for firing, they would be piled up systematically on the stone slabs, after which a thick wall of clay would be built round them and over them, covering them completely and protecting them from rapid cooling. According to Steiner,³ that is how things seem to have been managed at the legionary kiln at Xanten, where, as at Mumrills, the ground in the neighbourhood was plentifully strewn with masses of clay burned red. That our kiln was mainly used for bricks and tiles was manifest from the débris. But it is just possible that it was occasionally employed for pottery. Two small shards were found upon the floor. Their shape did not suggest any particular date, but their texture was so close and firm that Mr James Curle was disposed to attribute them to the first century. The circumstances of their discovery, however, make it difficult to accept their texture as a safe criterion; if they had lain long in the furnace, they would be hope-

¹ Plate i. is specially instructive.

² *Op. cit.*, p. 4.

³ *Ein römischer Legionsziegelofen bei Xanten in Bonner Jahrbücher*, 110, pp. 70 ff. See also Drexel, *Kastell Stockstadt* (Nr. 33 of *Obergerm.-raet. Limes*), p. 30.

lessly overfired. The fact that the kiln was in exact alignment with the great Wall leads me to believe that the two were contemporary—in other words, that the kiln and its contents are to be connected with a fort of the Antonine period.

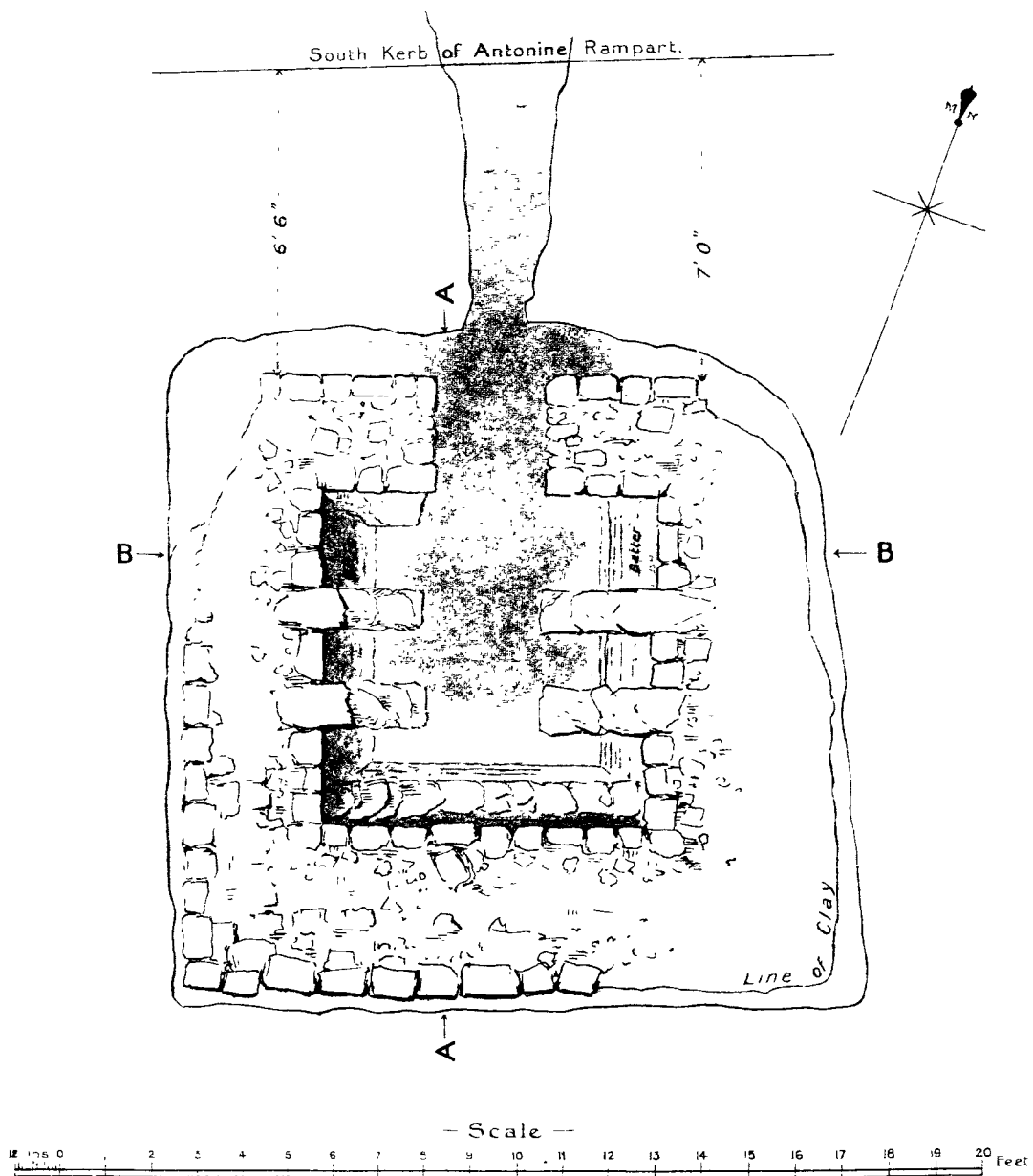
The interesting results secured at Mumrills supplied a stimulus to further investigation along that section of the line in the centre of which it lay. The track of Wall and Ditch was accordingly explored for a distance of some two miles on either side of it. Whether the extreme points reached were also the sites of forts is a question that may meanwhile be postponed. However they may have appealed to the legionaries, they were certainly the most obvious halting-places for the present purpose. As has already been indicated, the somewhat piecemeal fashion in which the operations had of necessity to be carried out renders it desirable that the account to be given of them should be geographical rather than historical. I propose to begin at Falkirk, and proceed thence eastwards to the Avon.

The estate of Rosehall, not far from the centre of the town of Falkirk, has succeeded in maintaining itself as a sort of oasis amid the wilderness of villas and houses, great and small, by which it is surrounded. It lies astride of the high ridge along which it has always been supposed that the Wall must have passed, and there was thus a reasonable expectation that trenching within its area would prove fruitful. The efforts of the first day or two were disappointing. In the end, however, we struck a substantial fragment of the stone foundation, just where it was about to cross the avenue that leads from the north entrance, and almost exactly 100 feet from the gate. It was 15 feet broad and was in fairly good preservation, the south kerb in particular being virtually intact. Although $2\frac{1}{2}$ feet of soil had to be removed before it was reached, there was not the slightest trace of lamination in the section of earth so exposed. Towards each of the edges, however, a certain amount of clay was visible.

The length of foundation uncovered was sufficient to enable us to determine the exact angle at which the Wall itself had run. Its direction had been south-east by east, almost coincident, in fact, with the conjectural markings on the Survey map of 1898 (Plate IV.). That this direction was maintained for some distance beyond the boundaries of Rosehall was *a priori* probable from the nature of the ground to be traversed. Various indications now justify a more positive assertion. The back portion of the house on the south side of Booth Place, which immediately adjoins Rosehall, has been placed directly above the northern half of the Ditch. When it was being built, the foundations proved so insecure that they had to be supported by the insertion of

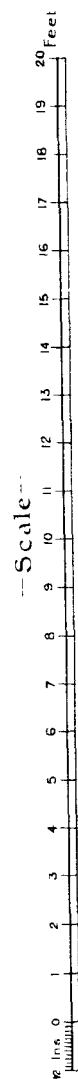
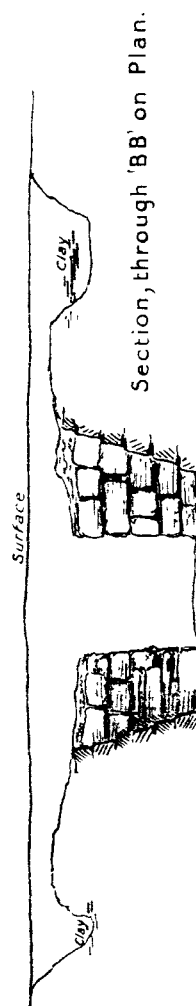
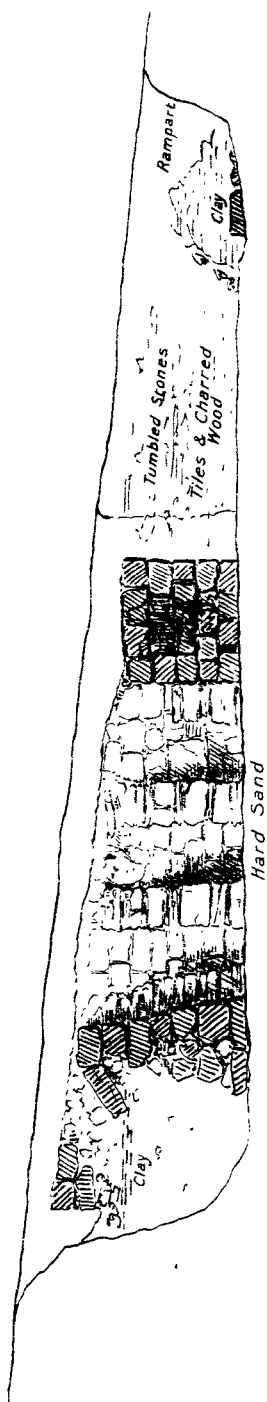
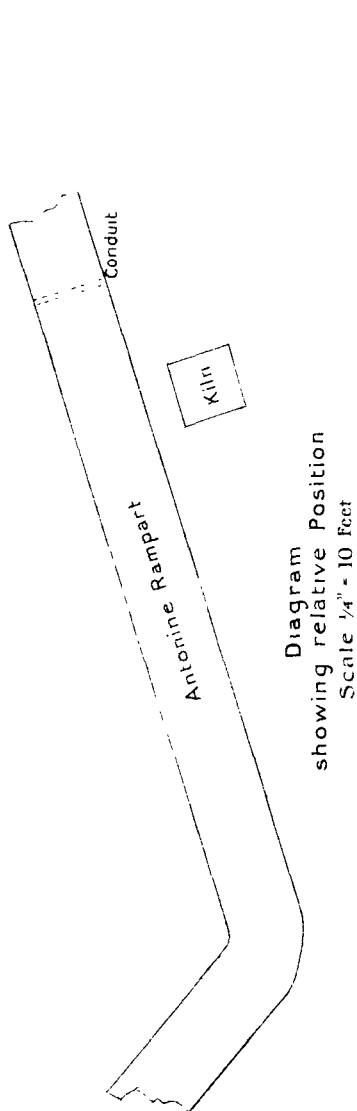
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PLAN OF KILN AT MUMRILLS.

Mungo Buchanan
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DETAILS OF KILN AT MUMRILLS

a series of low brick arches, to which access can still be had. The same holds good, though in a less marked degree, of the next house on the east. About 50 or 60 yards farther on, signs of subsidence can be detected in a group of buildings on the eastern side of the High Station Road, while cracked lintels tell the same tale in the row known as Comely Terrace. Opportunities for excavation are naturally very restricted so long as one has to do with streets and private gardens. But we had free access to the large field through which the East Burn flows, as well as to its neighbour on the west. The two are virtually one, there being a large open gap in the tall hedge that divides them.

The eastern, and more especially the north-eastern, part of the field is low-lying and apt to be marshy. Its western half, on the other hand, consists of a fairly steep slope, from the southern end of which a low ridge projects south-eastwards, descending slowly to the stream. It is along this ridge that we must suppose Wall and Ditch to have run, unless their direction had changed completely. Confirmatory evidence was not altogether easy to obtain. There had been much disturbance of the upper strata through tillage, and every vestige of the stone foundation seemed to have been swept away. At the same time the sandy character of the soil rendered it more difficult than usual to diagnose the line of the Ditch with perfect confidence. One trench, however, yielded what appeared to be a highly satisfactory result. This was dug at a spot 38 feet above the hedge and 315 feet from the southern boundary of the field. The sand proved to be abnormally "free" and to have numerous particles of decayed vegetable matter intermingled with it. A large fragment, fully an inch long, which was embedded at a depth of at least 4 feet, was submitted for examination to Professor Bayley Balfour, who has kindly favoured me with the following report, prepared for him by Mr H. F. Tagg:—

"The substance contains wood fragments, but is not homogeneous. It appears to be composed of vegetable remains of various kinds caked firmly together in layers. Cleavage of the substance in the plane of the strata is readily effected and its stratified nature is distinctly observable when sections are made at right angles to the layers. Such sections, and sections in other planes also, reveal small patches of vegetable tissue, including patches of what I believe to be woody tissue scattered in a stratified matrix. The latter is doubtless of vegetable origin, but definite histological characters are no longer recognisable in it. The patches of cellular tissue observable in the sections are not sufficiently well preserved or large enough to enable me to identify the remains of any definite plant."

Mr Tagg's report shows conclusively that there must once have been a great hollow at this particular spot; the presence of such a mass of vegetable substance so far beneath the existing surface cannot be accounted for upon any other hypothesis. It seemed well to quote it in full, because the problem is here rather crucial. The spot in question is well within the space that would have been covered by the Ditch, if the assumption we have made as to its direction be correct. And under ordinary circumstances there need have been no hesitation in drawing the obvious inference. If the map be consulted, however, it will be seen that we are already fully 100 yards south of the Ordnance Survey markings, and that the gap rapidly widens until it reaches a maximum of at least 150 yards. How is the divergence to be explained? Very simply, I think, if we grasp the principle upon which the Survey officers proceeded. They accepted the traditional (and, it may be added, very natural) view that the deep gully which lies athwart the western approach to the mansion-house of Callendar Park, some 50 or 60 yards south of the lodge, was the actual Roman Ditch, and they accordingly produced the line of it westwards until it met the previously ascertained line of Wall and Ditch advancing from Rosehall towards the east. On the map the junction appears, as a bend, in the garden of the most westerly house on the south side of Booth Place.

It is thus clear that the case for the old survey as against the new must stand or fall with the supposition that the gully referred to above is identical with the Roman Ditch. The grounds for that supposition are, in the first place, that the gully is undoubtedly artificial; and, in the second place, that it is very nearly in exact alignment with the unmistakable track of the Ditch where it shows itself in the park further eastward. As against this it may be pointed out that, though the gully is artificial, it is altogether unlike the true form of the Ditch, being far too broad at the bottom. Besides, a series of trenches dug 20 or 30 feet to the south of it failed to reveal the slightest indication of the stone foundation of the Wall. It may be that it was originally cut to give passage to a road, and that it was subsequently enlarged with the view of imparting as imposing an appearance as possible to what was believed to be the Roman Ditch, and therefore an interesting relic of antiquity. If this were so, the excavation near Bantaskine House, on the west side of Falkirk, would be in some respects analogous.

But the argument for the new survey is even stronger on the positive side than on the negative. Within the policies of Callendar Park, some 60 or 70 yards beyond the gully, a slight but quite per-

ceptible depression can be seen to the west of the avenue, running south-west by west towards a corner of the park wall. Its centre is about 154 feet north of the point where the west railing of the avenue joins the north railing of a coppice which encloses an old quarry. On trenching the ground to the south of this depression we discovered a mass of stones some 40 or 50 feet distant from the centre and only a little way below the present surface. Their general appearance was exactly what one is accustomed to associate with the kernel of the Wall foundation, and traces of clay were detected here and there in the interstices. It is true that there were no kerbs; but, on the other hand, the breadth (13 or 14 feet) was consistent with the hypothesis that what we had struck was really the base of the Wall with the large outer stones torn away. The feeling that this must be so was deepened into certainty as we worked westwards, digging at intervals parallel to the depression and always finding ourselves confronted by the same phenomena, except that at one point, not very far from the corner of the park wall, we came upon a portion of the kerb still in its original position. There is thus no reasonable doubt as to the correctness of the line as now laid down upon the map. If that be produced so as to meet the presumed course of Wall and Ditch as we followed it, advancing from Rosehall towards the east, it will be seen that there must have been a fairly sharp turn close to the south-east corner of the field through which the East Burn flows. Search was duly made for the stone foundation there. But, in view of the extensive operations that must have been involved by the building of the high park wall, it is not surprising that no vestiges of it had survived. At the same time the reason for the deviation was not far to seek. The builders, it has to be remembered, worked from east to west. As they came near the low-lying, marshy ground on either side of the East Burn they swerved to the south to avoid it and to catch the foot of the ridge, which offered the easiest means of ascent to the northern front of the plateau that was to carry them 600 or 700 yards further.

Returning to the avenue, we have no difficulty in pursuing the depression eastwards until it merges into the perfectly unmistakable hollow of the Ditch about 450 feet beyond the railing. For the next 600 or 700 yards the line is straight and the Ditch, for the most part, admirably preserved. Trial cuttings made at two points revealed the stone foundation in equally good condition. There were no markings to suggest that the superstructure had been of turf, but the depth of soil was insufficient to render this negative evidence conclusive. Clay, however, was once again observed. After this there comes a stretch of close upon 400 yards from which all surface traces of the Roman

barrier have entirely vanished; there is nothing to correspond to the strongly marked hatching on the Ordnance Map. Even trenching did not succeed in bringing to light any quite definite evidence of the presence of the Ditch. The explanation of the gap is doubtless to be found in the great enclosed garden which lies immediately to the south. The heavy buttresses by which its walls have had to be supported show that the ground within and about it is to a great extent made up; and appearances suggest that the necessary soil was secured by stripping from the northern portion of the park such depth of earth as may have been required. In the process the Wall has been wholly removed, while the Ditch has been reduced to dimensions which make it extremely hard to detect.

It may, however, be taken as practically certain that the eastward direction was steadily maintained. No other view would be consistent with the line in which the hollow of the Ditch runs when it emerges again on the further side of the avenue leading from the eastern entrance to the policies. Here it is once more quite deep, its identity being placed beyond all possibility of question by the survival of the stone foundation of the Wall. Accurate plotting now became specially important, as it would furnish a clue which was likely to be valuable in guiding us through the streets and houses of Laurieston. The foundation was accordingly uncovered at several points between the avenue and the railway line. It was from $1\frac{1}{2}$ to 2 feet below the surface, and was usually well preserved. The clay with which this section had made us familiar was noticed clinging to the stones, and there was no indication of the lamination characteristic of structures of turf. Digging near the southern edge of the plateau on which the Wall stands brought to light what seemed to be distinct vestiges of the Military Way.

The south kerb ran from a point 144 feet along the fence bounding the avenue to a point 133 feet out from the south-west corner of the sheepfold. Accepting this as a finger-post, we saw that the Wall was bound to cross the main road about the entrance to the village of Laurieston. To do this it had to descend somewhat rapidly. The ascent to the shelf of high land overlooking the Carse must have been accomplished in more leisurely fashion with the aid of a barely perceptible swing towards the north. Although Wall and Ditch are hopelessly buried for 500 or 600 yards, there is no doubt but that the street which still preserves the name of Graham's Dyke runs very close to the northern edge of the latter. A careful scrutiny of the houses on the right-hand side will discover cracked walls and gables at intervals almost from end to end, while at two spots nearly 130 yards apart we got news of the stone foundation having been torn up in the laying out of

gardens. In one case the notice was vague, but in the other Mr Buchanan had taken exact measurements at the time. On the whole, then, we need not hesitate to claim substantial accuracy for the line we have laid down through Laurieston, particularly as we were able to confirm and check it by excavation in Field No. 2001. In this field the stone foundation was opened up at two points, both to the west of the site of the now demolished cottage called Northby. It had a breadth of 14 feet 8 inches, and presented the same features as had been noted at Mumrills. The accumulation of clay at the outer edges was well marked. Indeed, in November, 1913, before we dug in it at all, the track of the Wall was plainly indicated by two light-coloured bands running from west to east along the freshly ploughed surface.

It will be remembered that there is good reason to believe that an annexe of the Mumrills fort once extended over a large part of Field No. 2095. The great Wall probably formed its northern defence. This must have continued to follow the same direction at least as far as the little field that separates the farmhouse from the public road, for the slope of the Ditch was observed some years ago in constructing a water-trough within the angle which the public road makes as it turns sharply towards the right.¹ But almost immediately after entering the enclosure it swerved slightly towards the south. The exact angle was exposed in November, 1912, in a trench dug diagonally across the little field by workmen who were leading a new water-supply into the farm. The stone foundation, as seen by myself, was here 16 feet broad, while the south kerb was 27 inches below the surface, the north kerb only 21. There was again a mass of clay at either side, and there was no trace of lamination anywhere. Still moving at the angle thus established, the Wall crosses the public road nearly opposite the entrance to the farm, where the remains of the stone foundation can be detected cropping out close to the edge on either hand. In Field No. 2106 it passes along the front of the fort in the manner already described, and then, at a point 80 or 90 feet further on, swings suddenly towards the north—a change of direction which was commented on above. The site of the kiln is about 120 feet beyond the turn, while about 20 feet beyond the north-east corner of the kiln the stone foundation was traversed by a conduit of the usual type (fig. 8).

The divergence between the old survey and the new now becomes at once very prolonged and very pronounced. For more than three-quarters of a mile they do not coincide, and at one time they are as much as 200 yards apart. The Ordnance officers, having no authority to dig, could only take refuge in conjecture, for there was no surface

¹ Information from Mr J. Smith.

evidence to guide them. Nor, in view of the unexpectedness of the knee-shaped bend, is it at all surprising that they should have gone astray. At one or two points—notably between the Mumrills Braes, and again further east on the slope of the hill that leads up to Polmont Park—they seem to have selected for Wall and Ditch the line that was really followed by the Military Way. Large stones that had probably belonged to the latter have been ploughed up in Field No. 2116,¹ about midway between north and south, and also towards the centre of Field No. 699.²

Apart from the knee-shaped bend, a possible explanation of which has already been suggested, the true course of the Wall was about as direct as it was possible to make it. In Field No. 2106 the stone foundation was well preserved for a considerable distance beyond the conduit. Gradually, however, the layer of soil concealing it decreased in depth, evidence of disturbance became more and more manifest, and we had to be content first with broken fragments, and finally with patches of white clay. As we approached the fence that separates Field No. 2106 from the public road, even our patches of clay failed us. Apparently the exposed position of the Wall on the brow and the steep face of the hill had favoured the influences making for destruction. At all events, digging in Field No. 2110 proved fruitless, and we were rather at a loss how to proceed until, guided by a report as to masses of clay turned up by the plough a year before, we were able to re-establish the line in most satisfactory manner in Field No. 2116. There the stone foundation was thoroughly examined by Mr Buchanan and Mr James Smith at a time when I was laid aside by illness. It was found to be in excellent condition, being 18 inches below the surface towards the west, and only 6 near the eastern boundary of the field. At one spot a continuous length of 10 feet was cleared, when the kerbstones were seen to be rather smaller than usual but “exceedingly beautifully dressed and neatly laid.” Mr Buchanan, indeed, whose experience is exceptionally wide, says that they represented “the neatest work I have seen on the line.”

From Beancross eastwards the ground is so perfectly flat as to afford no pretext for deviation. Accordingly we are justified in assuming that the Wall ran straight on. It hardly seemed worth while looking for direct evidence. The stone foundation appears to have been torn up, wholly or partially, as far back as two centuries ago,³ while the soil

¹ Information from Mr J. Smith, who pointed out to me some of the stones lying at the side of the field.

² *Roman Wall*, p. 140, where it was suggested that the stones had come from the base of the Wall.

³ Gordon, *Itin. Sept.*, p. 60.

in its neighbourhood has been so thoroughly and so frequently soaked by the overflowing of the two burns that the Ditch would have been hard to identify with confidence. In December, 1913, however, during the construction of a large drain, what may well have been the remains of the Military Way were incidentally laid bare in Field No. 691, about 100 feet to the west of the Polmont Burn and about 230 feet to the south of the public road. The indications were perhaps not definite enough to be quite free from doubt, but the position was certainly entirely suitable. For nearly 200 yards on the further side of the burn the Wall must have followed very much the same course as that now taken by the road. At Dollhouse, however, it seems to have turned a little towards the south. Such a change of direction at or about this point had to be postulated in order to secure agreement with the angle at which the stone foundation was ascertained to be lying in Field No. 894, and it was satisfactory to meet with confirmatory evidence close to the western edge of Field No. 896. There, about 100 feet along the hedge from the road and a foot or so beneath the surface, we unearthed a band of stones 13 or 14 feet wide. No kerbs were distinguishable, but the whole had been a good deal disturbed.

In Field No. 894 the stone foundation proved to be fairly well preserved as it passes up the shoulder of the Cadger's Brae, a good deal to the north of what has hitherto been believed to be its line. The hollow to the south cannot, of course, be any longer accepted as the Ditch, although it is not unlikely that it may indicate the track of the Military Way. In point of fact, for about 350 yards beyond the south-east corner of Field No. 896 the Ditch must lie beneath the modern road: this was quite clear from the position of the stone foundation as disclosed by digging at intervals from end to end of Polmont Park. It will be observed that about half-way along the park the old survey and the new coincide once more, only to diverge again almost immediately. The curious curve which Wall and Ditch here make was carefully verified by excavation; at some points the stone foundation still survived, at others one had to be guided by the loose dark soil that marked the progress of the Ditch. Its purpose can hardly be mistaken: the engineers wished to take advantage of a slight but convenient elevation. It will be recollected that a very similar bend was noticed a little to the west of Duntocher village.

On leaving the grounds of Polmont Park, Wall and Ditch enter the glebe, when the straight course is immediately resumed. Within the lower or western portion of the glebe the stone foundation remains virtually intact, about 2 feet below the surface and about 120 feet

south of the road. In the winter of 1912-13, when this field was freshly ploughed, the position of the Wall was betrayed by two parallel lines of clay running east and west amid the ordinary soil and supplying unmistakable testimony as to the character of the superstructure. This testimony, it should be added, was subsequently confirmed by closer investigation; the piles of clay at the outer sides of the foundation were less massive than they had been at Mumrills, but there was not the slightest sign of turf having been anywhere employed. In 1912-13 the upper or eastern portion of the enclosure was absorbed by an extension of the churchyard, the part of the stone foundation which it contained being uncovered and wholly removed, although not until after I had been able to plot it out on the map. The southern half of it lies beneath the shed where the grave-digger keeps his tools. It is worth adding that the Military Way is said to have been cut through some years ago, by workmen who were laying a new water-pipe, in a deep hollow that runs east and west between the church and the manse.¹

For some distance beyond this point the hatched markings on the Ordnance Map are substantially accurate. The depression of the Ditch can, indeed, be quite distinctly seen in the enclosure to the north of the church, and silent witness to its former existence is borne by the cracked gable of the cottage which stands on the east side of the public road immediately to the left of the entrance to the orchard (Enclosure No. 872), into the mazes of which the line now plunges. Digging here was difficult, owing at first to the thick growth of fruit trees and bushes, and afterwards to the extent to which a naturally heavy soil has been trenched and drained. But the end of the high ridge on the farther side of the Millhall Burn served as a conspicuous landmark right ahead, and towards that all the indications we obtained appeared to point. The steep east bank of the burn has been subjected to so much cutting and alteration, in connection with the construction of the mill lade, that all traces of the handiwork of the Romans have been swept away or buried beyond recall. But as soon as one has gained the shoulder of the ridge one is confronted by a great natural hollow, that sweeps in a gentle curve towards the south and then suddenly straightens itself before disappearing altogether.

As might have been expected, the Roman engineers followed the course that lay thus ready to hand. The Wall was built along the top of the southern bank of the hollow, and the Ditch was doubtless dug at the usual distance in front. As the bank had never been under cultivation, its examination was keenly looked forward to, in the hope

¹ Information from the Rev. J. Buchanan Mackenzie.

that the structure might have suffered comparatively little from the attacks of time. The result, however, was disappointing. There had been little or no accumulation of earth upon the surface to act as a preservative, so that, for the most part, the line could only be traced by the aid of isolated stones—generally kerbstones—protruding here and there above the ground or, it might be, torn up and tossed aside into a clump of underwood. Only at one point was a section (and a very small section) of the south kerb discovered actually *in situ*, with traces of clay adhering to the edges.

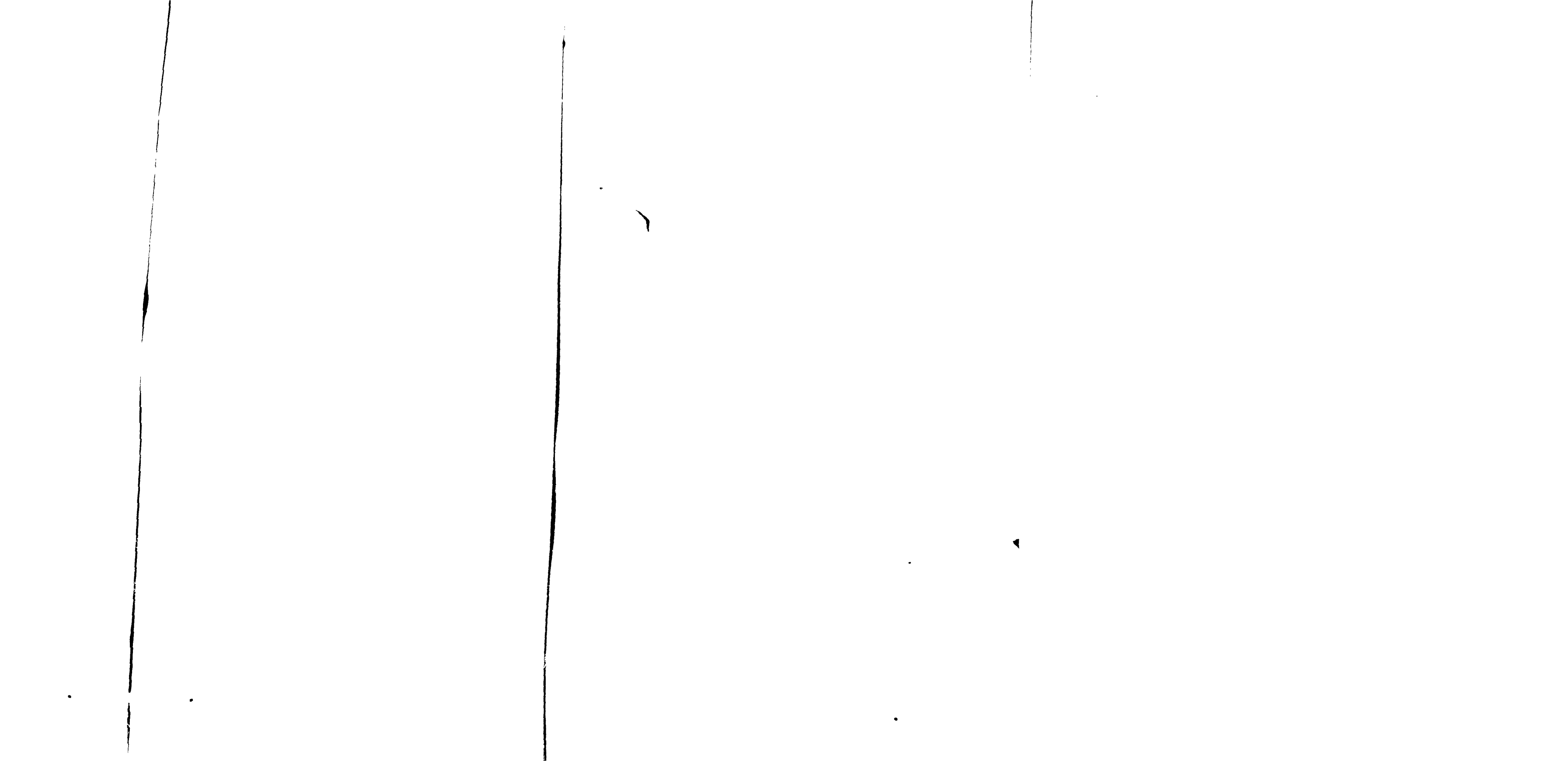
From Millhall Wood to the bank of the Avon, a distance of about 1100 yards in all, excavation is hardly necessary. In Field No. 868, for instance, the hollow of the Ditch shows very plainly except at the eastern end, where it has been obliterated by the construction of the large reservoir for supplying water to the town of Grangemouth.¹ The same is true of Field No. 833, where it crosses from the farm of Little Kerse to the farm of Polmonthill, and near the middle of which it takes a slight bend in passing over the top of the hill. In Field No. 832 the track is still quite visible, though scarcely so distinct. In Field No. 827 it disappears, but there can be no doubt that (as the hatchings on the Ordnance Map suggest) it continued to pursue the course already set until it reached the eastern half of the field, when it can once again be discerned swinging slightly towards the right to pass beneath the hedge and embark on a steep and almost straight descent to the river. Mr Meikle, the tenant of Polmonthill, tells me that even within his own personal recollection the process of gradual filling up has made considerable progress. And the plough, which is of course responsible for the levelling, seems long ago to have played havoc with the stone foundation. An isolated block may occasionally be thrown up here and there.² But probing and digging at various points between Millhall Wood and the brow of the hill convinced us that anything more substantial was now sadly to seek. The one definite vestige of the Wall which we thought we detected was at the western end of Field No. 833, where, in walking along the track of the Ditch in November, 1914, I noticed among the freshly turned furrows a line of clay running parallel to the Ditch and apparently representing the north kerb. Starting about 220 feet south of the south-east corner of the field, it was distinctly traceable for at least 10 or 12 yards.

Field No. 825 occupies the slope of the hill, and in passing through it the Ditch drops somewhat suddenly to the level of the bank of the

¹ This is not shown on the map, being of comparatively recent construction.

² I have noted one or two such blocks, and a few years ago the ploughmen on the farm told me that they turned them up not infrequently (*Roman Wall*, p. 141).

river. Its appearance still justifies the description given of it sixty or seventy years ago by Dr John Buchanan as "an immense slice cut out of the breast of the *brae*, with well-preserved edges." In the upper part of the field the stone foundation appears to have been completely removed. At all events we failed to locate it. About half-way down it proved to be in excellent condition. The north kerb was only some 3 or 4 inches below the surface, the south kerb about 18. The breadth was $15\frac{1}{2}$ feet. There was no lamination visible, but traces of clay were observed among the soil towards the southern side. A similar section was laid open at the foot of the field not far from the hedge. There, however, the ground was so wet that the trench filled with water almost as soon as it was cut. Consequently it was difficult to secure an accurate note of details, and we had to be content with recording the position. Beyond the road, in Field No. 822, a dip in the farther hedge remains to show where the Ditch once ran. A search for the stone foundation was without result. But it is perhaps significant that in turning over the earth at this point we lighted on a small lump of stiff white clay which was obviously intrusive. Taken in conjunction with the other evidence obtained, it seems to set the seal upon the view already indicated — that the structure of the Wall which was observed at Mumrills was characteristic of the whole stretch from Falkirk to the Avon.



II.

ACCOUNT OF EXCAVATIONS ON TRAPRAIN LAW IN THE PARISH
OF PRESTONKIRK. COUNTY OF HADDINGTON. IN 1914. BY
A. O. CURLE, F.S.A. SCOT., *Director of the National Museum.*

Traprain Law, or Dumpender Law, lies $1\frac{1}{2}$ mile to the south-south-west of the small town of East Linton in the parish of Prestonkirk, and is conspicuous from the railway as the train passes southward from Drem towards Dunbar. It is situated in an undulating terrain, swelling gradually upwards from the East Lothian seaboard to the Lammermuirs. Its summit—710 feet above sea level and 360 feet above its base—commands a wide prospect ranging from the Pentland Hills round by Gullane Hill and North Berwick to Dunbar, while to the southward the Lammermuirs roll backward to the horizon.

Of the two names which the hill bears, Traprain Law and Dumpender Law, the latter is the more ancient, but the former may claim an antiquity of at least two or three centuries. In the anonymous description of East Lothian published in the Macfarlane Geographical Collections,¹ "Traprain Law" is mentioned as one of the hills of the county, and though that particular article in the collection bears no date, yet, from its having been in Sir Robert Sibbald's possession, one may safely infer that it was written in the seventeenth century. As for the name Dumpender, we first meet it in the form Dumpelder in the *Life of St Kentigern*,² to be referred to hereafter, written by Bishop Joceline probably in 1180.

The etymology of the word, kindly suggested to me by Professor Watson, is *Dun*=a fort, corrupted to *Dum*, and the Cymric *paladyr*=a spear shaft, plural *peledyr*; the meaning might therefore be "the Fort of the Shafts," with possible reference to a palisade which no doubt topped the still existing ramparts. For Traprain the same authority proposes *Tref*=a homestead, and the Cymric *pren*, a tree, supplying for the whole the meaning of "the Tree-stead," i.e. the homestead by the tree.

Considerable though the population of Dumpender must have been in past times, and rich too, as the relics found indicate, according to the standard of wealth then prevailing, its houses had probably crumbled to dust and its importance vanished before any page of the authentic history of the neighbourhood opens to us. Tradition, or legend, however, incidentally brings it to view in an interesting connection. The story of St Kentigern, referred to above, narrates how Tenew, daughter of Loth,

¹ *Macfarlane's Geographical Collections* (Scottish History Society), p. 112.

² Forbes, *Kalendars of Scottish Saints*, p. 364.

King of Laudonia, being found to be with child, was, according to the custom of her tribe, cast down from the heights of Dumpender, as a punishment for her supposed crime. From the fate decreed for her she was, however, miraculously preserved, though only to be accused of witchcraft and to be exposed by her father, at the instigation of his heathen subjects, in an open boat on the Forth. How she landed near Culross and gave birth to St Kentigern are matters more intimately connected with the life of the Saint, better known as St Mungo, than with the history of Traprain Law.

With yet another Saint, Modwenna,¹ considered by some to be identical with Medana, the hill is also associated. This holy lady (who died in 517 or 518), though carrying on her mission chiefly in Ireland, is said to have founded seven churches in Alba. Her foundations were for the most part on hills or rocky eminences, which were probably the sites of existing settlements, and such undoubtedly was Dumpender, the site of one of these foundations.

The only reference I have found in history to the hill is a statement to the effect that when the English Fleet was expected in the Forth during May 1547, Patrick, Earl of Bothwell, was appointed to have the care of the bail or beacon on "Dunprender Law."²

The statement contained in the old *Statistical Account* that the name was changed to Traprene Law, "from the two French words *trape* and *reine*," owing to Bothwell having carried off Queen Mary to Hailes Castle in the neighbourhood, may be most conclusively disposed of by stating the fact that the name "Trapren" appears in the *Great Seal Register* as early as 1451. Another piece of information which the author of the foregoing remarkable etymological proposition gives is, however, of more importance to us, as perhaps explaining certain puzzling foundations on the actual summit of the hill. The passage runs: "Several years ago a small plantation of different kinds of trees was made on its summit by way of experiment, and inclosed with a stone dyke or wall six feet high. The trees succeeded very well while they were sheltered by the wall, but since that time they have not made the slightest progress."³

From the earliest time, owing to its commanding position at the edge of a rich champaign and its strong natural defences, the hill must have been periodically under occupation. On plan it is oval, lying with its main axis north-east and south-west, and is somewhat pointed towards the former direction (fig. 1). Along the south-east flank a precipitous

¹ Forbes, *Kalendars of Scottish Saints*, pp. 404, 406.

² Chalmers, *Caledonia*, vol. iii. p. 452.

³ *Stat. Acct.*, Whittingham, vol. ii. p. 349, 1792.

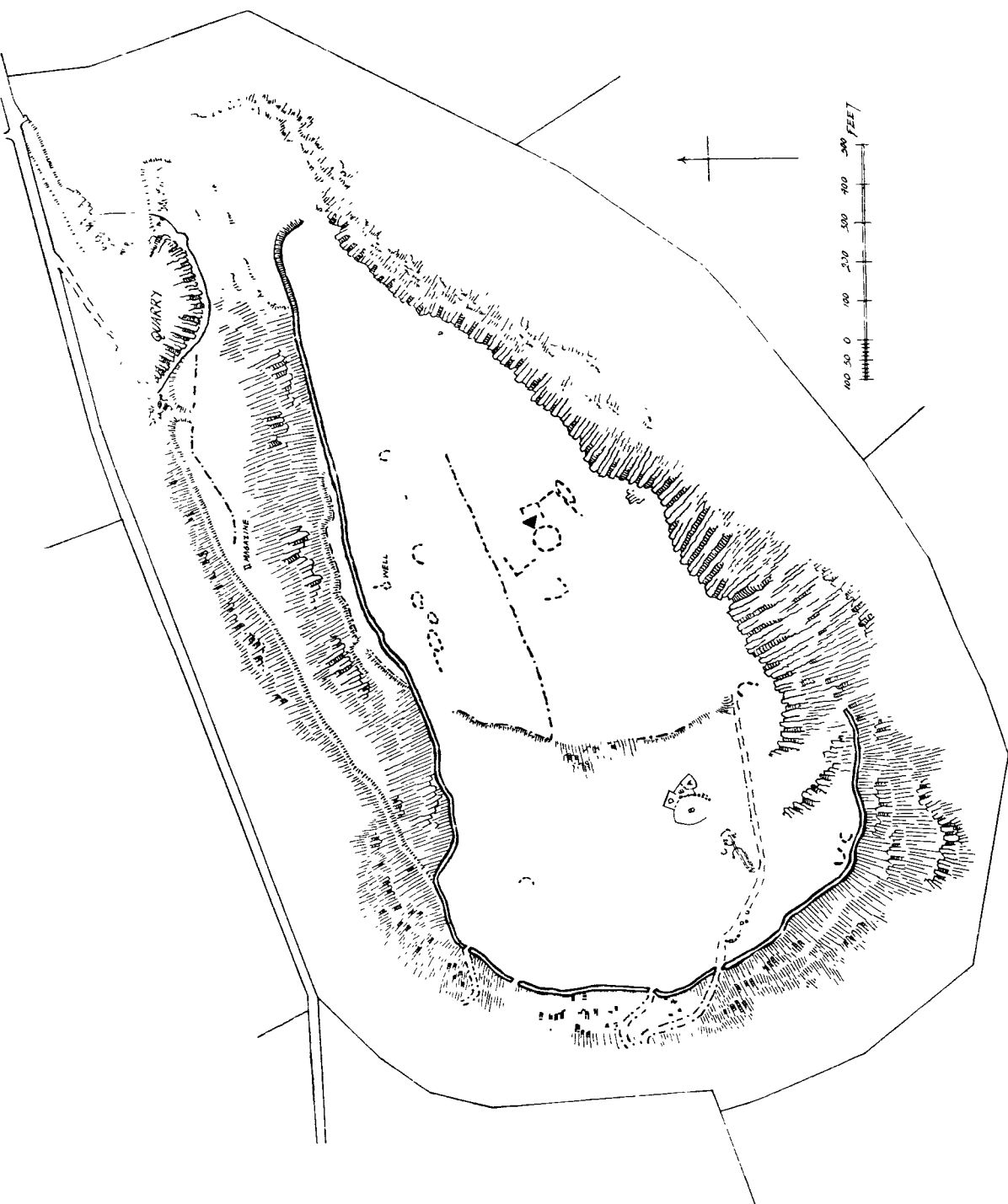


Fig. 1. Plan of Traprain Law showing areas excavated.

wall of rock rises from a steep rock-strewn slope to a height of 200 feet, breaking away as it sinks to a lower level towards the south-west in hardly less precipitous crags. Along the north-west flank the ground rises directly from the base very sharply to a height of some 50 feet, with a broken and rocky surface which in itself constituted a formidable barrier. Above this, on the more southerly half of the north-west exposure, it mounts upwards with a gradually diminishing gradient to the actual summit, which lies at no great distance back from the edge of the precipice on the opposite side.

The fortifications will here be described only in a general way, as it is the intention of the Excavation Committee at some subsequent date to examine them with the help of the spade more thoroughly than it has so far been possible to do. They practically contain the whole hill, following the edge of the steep slope at the base on one side and the crest of the south-eastern precipice on the other, thus including an area approximately half a mile in length by some 330 yards in breadth. Starting from the termination of the precipice towards the southern end of the western side, a rampart with a stone revetment on both faces swings round the broad extremity of the hill, and is thence carried along the edge of the lower escarpment on the north-western flank until it meets an obtruding mass of rock, beyond which the side of the hill becomes steeper and is rough with masses of rock detached and in outcrop. Taking advantage of this change of surface, the rampart is deflected abruptly to the right up the hill, thence with a sharp turn to the left it passes along the upper edge of the steeper slope, eventually turning round the north-east end to meet the precipice on the opposite side. Some distance beyond the rocky outcrop where the first deflection occurs, a terrace breaks across the flank of the hill for a considerable distance. On to this terrace at its north-eastern end, and close to the huge quarry which now disfigures the face of the hill, there leads an approach which appears to have formed at one time an important access to the fort. The road proceeds up a hollow, and where it debouches on the terrace its outer side is demarcated to right and to left by large stones set on end. The lower edge of this terrace has been defended by a wall built, as to its lower courses (which alone remain), against the edge of the bank. Along the terrace, proceeding to the south-west, a road may have led, crossing the obtruding rocks by a rough track and entering the main enceinte by a gap in the rampart just where it has been deflected up the hill; but as there are indications of blasting on the line of the track, and as the gap through the rampart is so inconspicuous, it is possible that both the track and the break in the rampart are

secondary. Fig. 2 shows the northern flank with its lines of fortification, so far as still visible from a distance.

At certain places there may be picked out indications, often vague and indefinite, of another system, which, to judge from the worn and attenuated appearance of the remains, is possibly a more ancient one. The summit-area of the hill lies parallel to the edge of the south-eastern precipice, with no very marked alteration in gradient from end to end. Towards the south-western extremity, facing the north, this area is bounded by an escarpment broken up with masses of rock of sufficient importance to be treated as a factor in a scheme of fortification. At

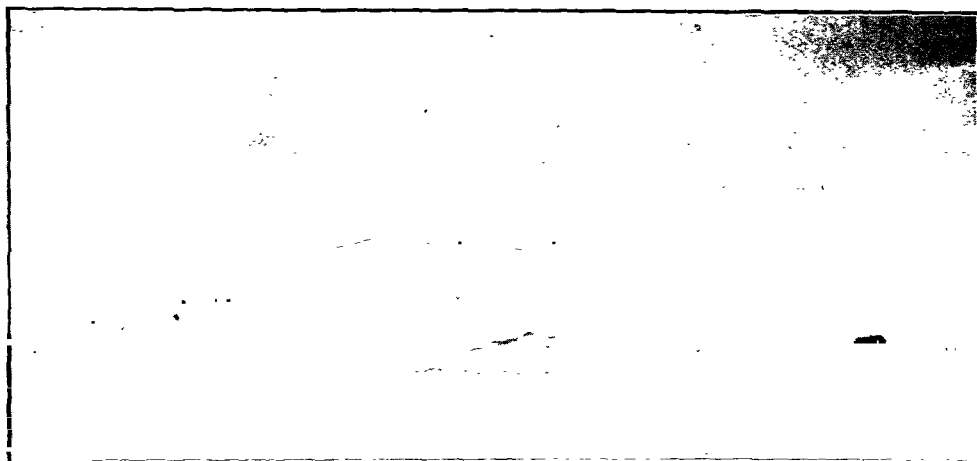


Fig. 2. Traprain Law from the North, showing lines of fortification.

the southern extremity of the escarpment, just where a roadway enters the summit-plateau, traces of an ancient wall or rampart may be observed, sometimes marked by upright stones and sometimes by the débris, partially covered by turf, forming excrescences on the surface. It may be traced meandering along the edge of the escarpment for a considerable distance till the rocky surface gives place to grass, when it turns down over the haunch of the hill to intersect the main rampart, coming up from below, just at the point where the latter makes its higher deflection to the left, and proceeds direct towards the north-east end of the hill. On the upper side there is no actual contact with the two lines; but from the lower face of the main rampart, the rampart which I am presuming to be of earlier construction is distinctly visible curving for a short distance farther down the hill and then along the flank north-eastward in a direction roughly parallel to the main defence. At the point where the upper portion of this ancient

wall swerves to proceed down the haunch of the hill, yet another rampart of the primary system may be discerned. Starting here it runs north-eastward towards the extremity of the summit-plateau, roughly parallel to and at a considerably higher level than the main secondary defence, but fades away before it actually attains the end of the hill.

Besides the entrance in the neighbourhood of the quarry, four other gateways give access to the enceinte, seemingly arranged in pairs. Approached from the north-east, the first of the first pair occurs about 175 feet beyond the point of deflection of the main rampart, and has been approached by a well-defined track which winds up the lower escarpment. Through the rampart, with a width of about 10 feet, its course is oblique, pointing eastward, and when it opens on to the interior it is flanked to the westward by a rocky bank, preventing any easy access in that direction. Its neighbour lies 130 feet further on and is somewhat wider.

After an interval of some 340 feet the first of the next pair is met, approached through a deep hollow. The approach is faced on the interior by a traverse of rock which completely commands it from a height of some 10 to 12 feet above the solum of the gateway, and around the ends of which the paths in either direction must have turned. The approach to the other is carried by an easy gradient along the flank of a bluff, from the crest of which it is overlooked, to the entrance in the rampart, about 12 feet in width. Running from it directly into the interior a roadway can be discerned by the slight hollow which marks its surface, as well as by the occasional occurrence of large stones set on end at one side of its course, leading up the broad haunch, which the hill presents at this point, to a dip in the escarpment demarcating the summit-plateau towards the south-west end on the northern side. As this road approaches the dip, a bifurcation may be observed, marked out by occasional stones set on end protruding from the turf, leading in a north-easterly direction towards a fairly extensive plateau that lies just below the hill-top slope.

On the surface of the plateau the indications of disturbance and occupation were considerable: nettles luxuriated in dense clumps, the rabbits found the soil free and attractive to burrow in; large stones stuck up here and there that were never so placed by Nature, and a stick pressed through the turf showed the ground to be loose and deep. Here, accordingly, it was decided to commence excavation, and for guidance in planning, a datum line was laid down from the beacon on the summit to a point on the rampart 210 feet to the south-east of the most southerly of the entrances.

The areas which were cleared out this year are marked on the plan of the fort (fig. 1), under the letters A, B, C, D, and E, and comprise altogether a total superficial area of about one-seventh of an acre. Plots A, B, D, and E all lie contiguous at the south end of the plateau, while C lies to the northward of the roadway about 90 feet further down the hill.

So little do we at present know of the periods to which our native forts belong, or of their internal arrangements, that there are practically no existing data available to guide the excavator in his search for foundations of dwellings or any other erections. The preliminary work of exploration is consequently fraught with considerable difficulty, until at least the stratification of levels of occupation has been ascertained. This, then, was our first task.

Besides the luxuriant growth of nettles which covered the surface of Area A, several large stones protruded like hog-backs through the turf, suggesting that it was the site of a hut circle. On removal of the turf this circle was found to be merely apparent, the form irregular, the stones varying considerably in bulk and not generally contiguous. Within it, and abutting on the east side, there was laid bare what appeared to be a segment of an inner circle, indicated in the same way as the larger circle by large stones irregularly placed and of varying size. No definite floor was exposed, nor were any relics found to throw light on the period of these foundations, if such they may be called. There seemed no doubt, however, that the placing of the large stones was intentional, and that a hut of some sort had occupied the site. It having been ascertained that a bed of forced soil underlay this level, the stones and earth were removed, and, near the centre of the larger circle and directly beneath the larger stones of the inner segment, one end of a well-formed rectangular hearth was laid bare, consisting of three blocks set on edge, while to the *south* of this lay a small paved area; but beyond these features there were no placed stones, which could be definitely taken as foundations, giving any indication of the form of the superstructure. The evidence was, however, sufficient to prove a second occupation. On clearing off the soil to the level of the paving, a number of pieces of Samian ware were found, which at once threw light on the period of this occupation. Digging downward, at a depth of about 3 feet 6 inches from the surface, the natural subsoil was reached, overlying which, and immediately beneath the hearth, a bed of refuse consisting of bones and discoloured soil occurred, supplying evidence of a third occupation, the earliest of all. As on the level above, here also the evidence of

structure was of the vaguest. Several large blocks of stone lay over the floor area, but, though their positions were carefully surveyed, the plan produced on paper failed to disclose any structural arrangement. A hearth, however, was revealed as well by the refuse on it as by a long narrow slab forming one side set on edge and firmly sunk in the ground. The one stone of a rotary quern lay on the floor area. Fig. 3 shows in section the three levels disclosed, the tape measure lying

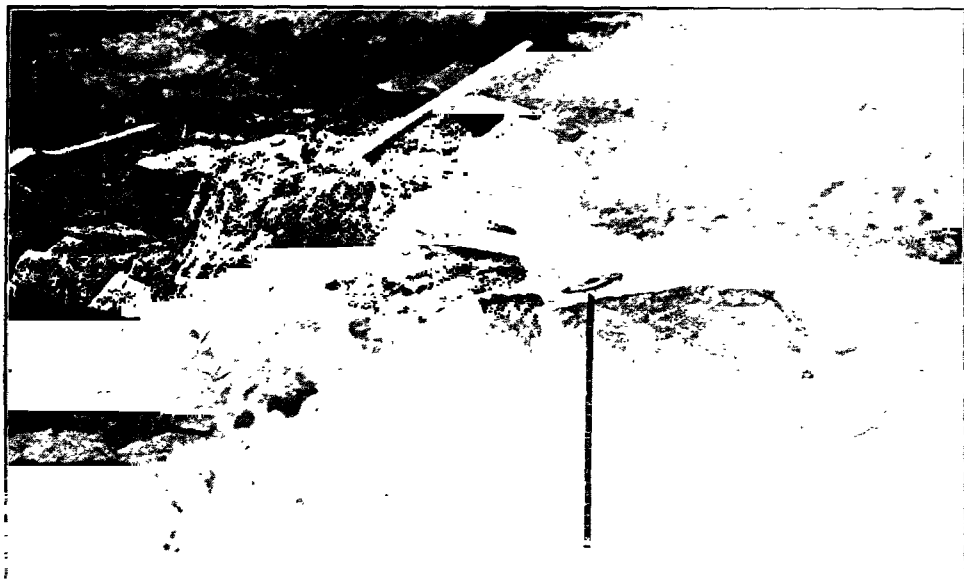


Fig. 3. Showing the relative positions of the three levels in Area A.

on the kerb of the hearth noting the second level, and the end of the tape touching the floor of the earliest inhabitation of the site. Following out the lowest level to the westward, for the strata above showed no particular features of occupation at this point, a slightly more definite arrangement of stones was laid bare, which was probably the foundation of a clay or turf dwelling (fig. 4). The plan indicates an oval structure lying with its main axis north-east and south-west, measuring some 25 feet by 19 feet and slightly imperfect in form towards the north-east, due probably to a previous removal of stones. Except at this point the oval was surrounded by a more or less definite outline of stones, largest on the western arc, where one of them was an enormous block. In studying the plan, one observes an area amounting

to about one-quarter of the interior space devoid of stones on the south, and three triangular beds of stone with their bases resting on the periphery, two opposite each other with a space between occupying the north-west end, while the third occurs to the south of one of these on the eastern side. Just at the apex of this last triangle two stones set at right angles to each other appear to mark the site of a hearth. An irregular bed of stones occurs at the south-eastern end of the plan, where the outline seems to be incomplete.

Before leaving the description of the features observed in this area

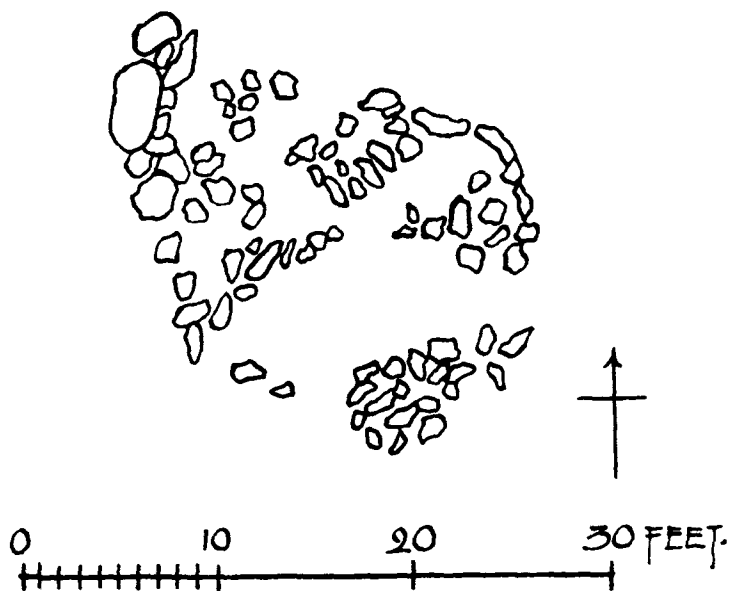


Fig. 4. Foundations exposed on lowest level of Area A.

it may be noted that at more than one place there was evidence in the nature of the soil that the level of the second occupation had been artificially raised by filling in material. Thus occasional deposits were encountered of the pan through and beneath which occurred strata of discoloured soil.

It should also be recorded that adjoining the hearth on the second level there was found a small oblong compartment formed of stones set on edge, measuring some 12 inches in width with a height of 8 inches, and containing clay, in a plastic condition, of several pounds' weight. On the lowest level a small dome-shaped mass of worked clay about 10 lbs. in weight was also discovered.

Having ascertained from this excavation that we had at least three

distinct occupations to deal with, and also something of the revealed nature of each, we proceeded with the exploration of Area B. To it we were also attracted by a line of large outcropping blocks of stones set on edge and contiguous, extending in a northerly direction and lying to the west of Area A. These stones were set on a curve and appeared to bear some relation to the branch road previously noted and marked by similar stones at intervals on its sides. On removal of the turf to the west of this line of stones a singularly confused mass of stones was exposed revealing no structure, and only at one or two points any feature which suggested intentional arrangement. The stones were angular blocks, lying for the most part as if they had been tipped out of carts and spread about anyhow. The ground rises here from south to north, showing in section a depth of about 18 inches of soil above the pan on the south, and of some 4 feet on the north edge of the excavation; and while the setting of stones bounded the area on the east with a depth from subsoil to surface of some 3 feet, the outcropping rock appeared immediately below the turf on the west. The general character of the exposed surface is best seen in the illustration (fig. 5) taken from its north end.

As observed in the lowest level of Area A, there are here also spaces left clear between projecting beds of stones, on two of which occur hearths, as indicated by crosses in fig. 5. It may also be observed from the illustration that the stones forming the triangular bed between these two open spaces present the appearance of having been carefully laid, in distinction to those on the extreme left of the figure which are lying much more unevenly. On one of the hearths lies half of the stone of a rotary quern, while the greater part of another quern-stone stands on edge behind it. The hearth in the foreground had been paved with thin slabs of red sandstone which showed many traces of the influence of heat.

On clearing off the turf to the northward on Area D a more regular circular setting of stones was disclosed, with an interior diameter of some 8 feet, as well as another heap which did not reveal its purpose. Neither over this area nor over the adjoining Area E did there come to light the same inexplicable layer of stones as was seen on the south side of Area B. It is a conjectural explanation of this layer that it represented either the very complete ruins of a dry-built wall, or the cradling on which a turf rampart had been erected; but the latter hypothesis is weakened by the fact that no swelling remained on the surface to indicate the existence of any such rampart.

At the uppermost or north-east side of Area E a number of large

blocks of rock lay confusedly with their bases about 1 foot 4 inches below the present surface, but there was no indication of any floor or hearth connected with them. Relics were by no means plentiful on this upper level in any section.

After the removal of all the stones that lay on the upper surface, and also of about a foot of soil, the second level of occupation was met with as in Area A. Here a completely different condition from what had pre-



Fig. 5. View of uppermost level of occupation on Area B; remains of hearths marked thus. +.

vailed on the level above was revealed. Near the centre (as shown on the plan, fig. 6) lay a well-constructed oblong hearth (fig. 7) some 6 feet in length by 3 feet 6 inches in breadth, formed of slabs set on edge firmly set in the ground, with a paving over the greater part, beneath which the soil was much burned. It lay north and south and was open towards the south end, in front of which extended a farther area of paving. Some seven feet distant from this hearth on the east side and approximately parallel lay a row of boulders (see fig. 7) extending contiguously for a distance of nearly 16 feet, beyond which point their line appeared to continue northward, though irregularly, to the limit of the area. At some 16 feet distant from this hearth in a north-westerly direction and

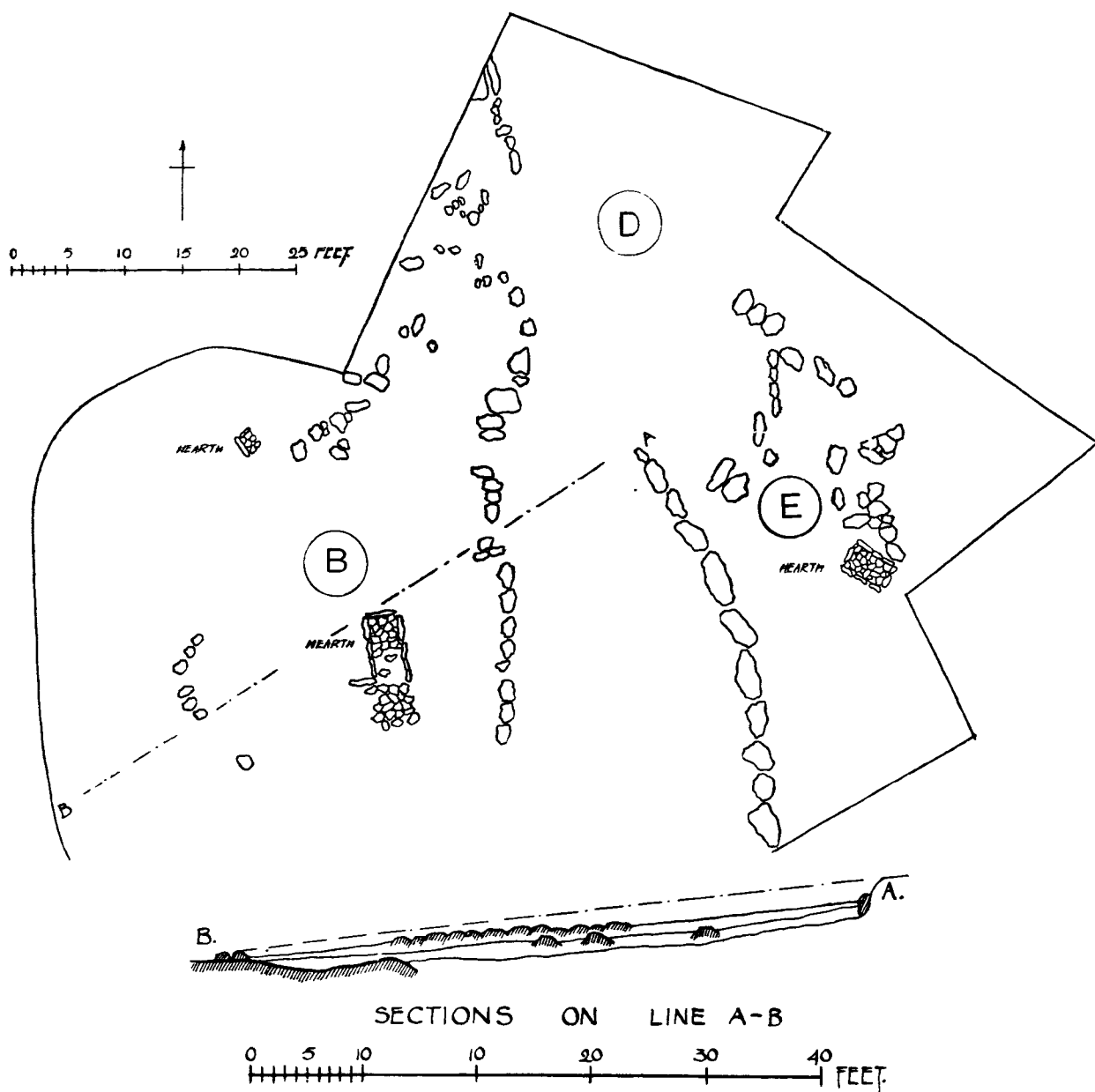


Fig. 6. Plan of the second occupation level in Areas B, D, and E.

lying at an angle to it were the remains, consisting of one corner and some paving, of what appeared to have been a similar hearth. Some large stones, as shown on the plan, lay adjacent but did not reveal any arrangement. Some 16 feet to the westward of the first-mentioned hearth a few boulders seemed to have been placed on a curve and may have had some relation to a superstructure of which no trace remained; there was no indication, however, of a floor connected with them. Over Area D the stones revealed no arrangement except at the north corner of the area,

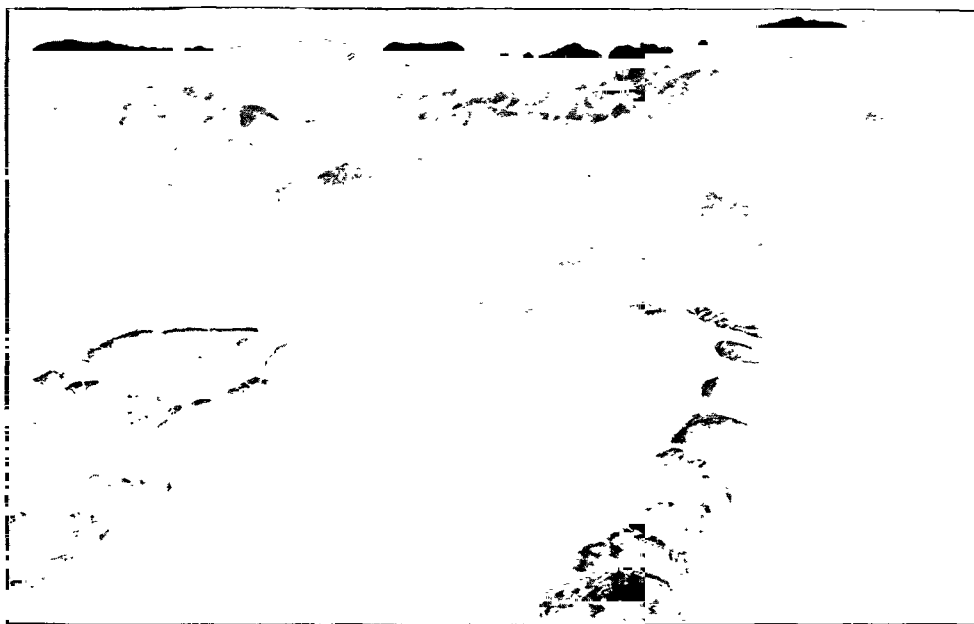


Fig. 7. Hearth and row of boulders on the second level of Area B.

where a row, which seemed purposely placed, extended for a distance of some 7 feet, terminating with a large stone only partially uncovered. On Area E the various boulders scattered over the surface disclosed no definite plan, but towards the south-east side, another oblong hearth was laid bare, of the same type as those met with at other parts of this level. It measured some 4 feet 3 inches in length by 3 feet in breadth and was paved all over. No post holes were met with at any point, and though here and there the soil was discoloured, it was in no case found to be so to the extent of indicating the limits of a floor. Along the east side of the row of boulders in Area B there lay a bed of clayey soil about 2 feet in breadth and some 6 or 8 inches in depth.

This level of occupation just described lay at an average depth of

about 1 foot below that of the first occupation. At a depth of about 6 inches lower occurred another level, revealed on Area B, and distinguished by two hearths constructed on a much smaller scale; also two small areas of paving which I shall hereafter designate as level 1B. Though in neither case did a hearth of the one level overlie that of the other, they were situated in such proximity as to render the difference in level obvious. Also, a paving to the north of the large hearth of the second occupation dipped at an angle which, if continued, would have carried it beneath the latter. Immediately to the east of this paving, but at a slightly lower level, was yet another paved area measuring some 8 feet by 7 feet, which I shall refer to as 1A. Among the stones of which it was formed lay the upper stone of a rotary quern. Beneath it again the soil was much discoloured, showing a still earlier occupation, which appeared to coincide with a more or less circular setting of stones a little further east which was obviously the first. As on these levels no floors other than the occasional blocks of paving were observed, it can be understood that they were extremely difficult to identify. To sum up the results, evidence was afforded, in a depth of some 4 feet of soil, of five different occupations, the topmost or latest of which occurred about 1 foot 6 inches below the turf where the soil was deepest. Of these occupations the earliest, the latest, and the intermediate one were recognised in each area excavated and appeared to be general, while the others were very partial. The sections on line A—B (fig. 6) show this general group.

On various parts of the hill there are to be seen oblong depressions, with here and there large stones set on edge in the outline, which appear to be the sites of huts. Two such depressions in alignment (fig. 8) lay some 90 feet further down the hill from the western limit of Area B, parallel to and not far distant from the line of the road. The upper one measured in diameter some 32 feet by 24 feet, and the lower—some 8 feet distant from it—33 feet 10 inches in length and some 32 feet 8 inches in breadth. An exploratory trench was dug through the centre of both, from the lower end of the lower depression to the opposite end of the upper. In the lower site this disclosed no trace of occupation, the soil beneath the turf being undisturbed and in its natural condition; nor did that of the upper half of the second site differ from this. It was evident, however, that the lower half of the latter and the greater part of the intermediate area were occupied by disturbed ground.

Over this area, at a depth of about 1 foot below the present surface, a stratum of grey clay was met with nearly a foot in thickness, not discoloured on the surface, as one would have expected it to

be had it been a floor, nor compacted in any way. A very few fragments of coarse native pottery were found in this deposit, also one or two pieces of grey Roman ware. No hearth lay on its surface, and it was difficult to account for on any other ground than that it was the remains of a disintegrated wall of clay which had surrounded the dwelling. Immediately below, at the level corresponding to the intermediate or second level of the other areas, an oblong hearth was laid bare.

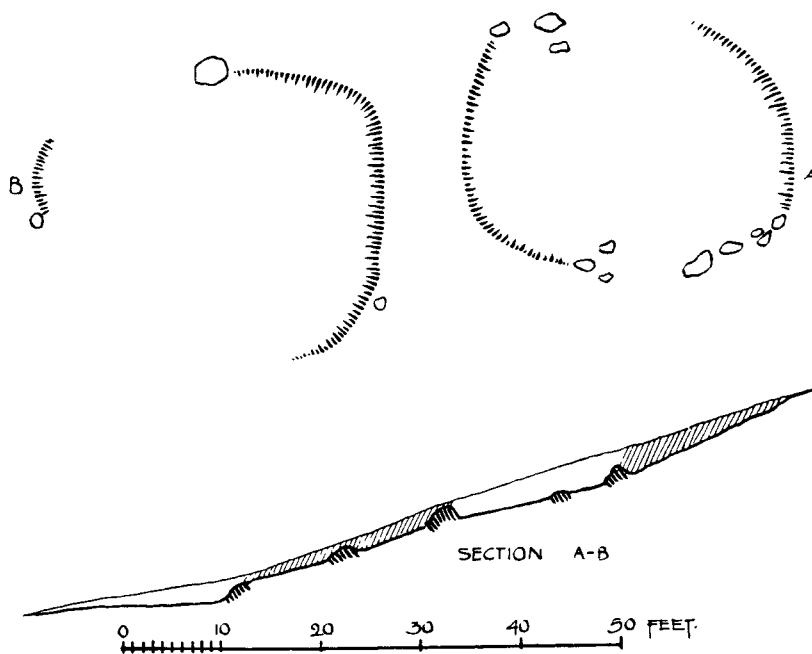


Fig. 8. Plan of surface depressions, Area C, and section through them.

It measured 5 feet by 3 feet and was constructed in exactly the same manner as the others, outlined with long narrow stones set on edge and paved all over. Under the paving the soil was burned red by the action of fire. A few fragments of red pottery of Roman make came from its vicinity. Beneath the hearth the forced soil extended downwards for about 1 foot, much discoloured in places. It contained few relics and little pottery, though included in the latter were fragments of Samian ware and black cooking-pots. The clearance to the bottom showed the original excavation to have been oval, measuring apparently—for its limits were obscure towards the south—some 19 feet by 16 feet, with its longest axis at right angles to that of the sites visible on the surface. On the upper side it was sunk to a depth of about 3 feet,

the depth gradually diminishing with the slope of the hillside. Against the sides, which were sloped back at an angle of about 45° , stones had been placed at intervals, no doubt to keep up the soil; somewhat towards the north side was an irregular arrangement of large stones in which were formed two recesses (fig. 9), one of which rested against the bank on the north-west, and each measured some 6 feet in length by 4 feet in breadth.

Thus far, with the exception of the hearths, very little that was structural has come to light in the excavation, and no plan has been obtained which can really give us a satisfactory idea of what the dwellings of the time were like; but, fortunately, other data were



Fig. 9. Arrangement of large stones on bottom of Area C.

obtained which go a long way to explain the absence of any structure. On the lowest level of Area B, towards the east side and in a place where there was much discoloration of the soil, a number of lumps of burned clay were picked up which bore distinctly on one surface the impression of wattle, one portion of which is shown in fig. 10 along with a sketch illustrating the arrangement of the wattles actually impressed on it. Pieces of this material were discovered in the lowest level of Area A, also in the upper level of that area, as well as in the upper level of Area C, though in the two last-mentioned cases the quantity extended only to single pieces. As, however, all the examples found, with one possible exception, appear to have been burned, we may suppose that when not so affected by heat the daub was gradually resolved to earth, and this may account for the bed of clay which lay alongside the line of boulders on the second level of Area A, as well as for the stratum of the same material on the upper level of Area C. It may perhaps also afford an explanation of the unusual accumulation of soil over the

various levels during a comparatively short period of time, as evidenced by the respective relics to be discussed hereafter. In the Romano-British village at Woodcuts, excavated by General Pitt-Rivers,¹ similar evidence of wattle and daub construction was found; and more recently pieces of clay impressed with the marks of wattles have come to light

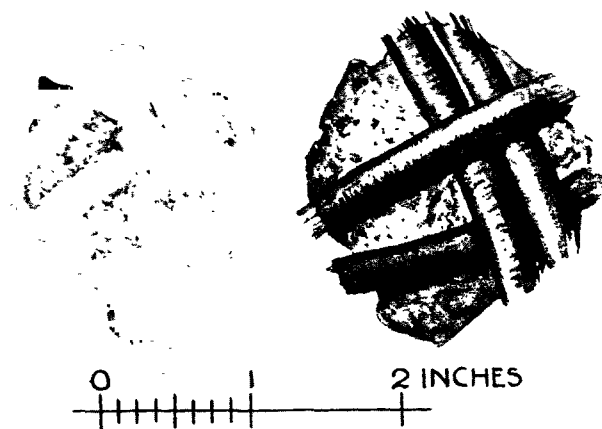


Fig. 10. Piece of burnt clay with impressions of wattle, and sketch showing their arrangement.

in the excavations on the site of the Roman town at Wroxeter²—both, as the relics show, of coeval occupation with Traprain.

Let us now turn to the relics recovered from the various areas excavated, and see what reasonable deductions we may draw.

I. POTTERY.

If we consider in the first place the pottery, we find in the lowest level of all on each area many sherds of native pots, thick hand-made ware, fashioned from material unrefined and mixed with pebbles and grit (fig. 11, Nos. 1-3). In the majority of cases the fragments are those of pots with straight sides thinning away to the lip, which is rounded, though occasionally having a flat or bevelled lip, as shown in the illustration of sections (fig. 12). The sooty incrustation of the walls of almost all these vessels shows that they have been cooking-pots. They are all absolutely devoid of decoration either by applied or incised ornament with one single exception, where a sherd is crossed horizontally

¹ Pitt-Rivers, *Excavations in Cranborne Chase, Woodcuts*, vol. i., pl. lii.

² Bushe-Fox, *Excavations at Wroxeter, Shropshire, in 1912*. Pl. v. fig. 1.

by a broad impressed band. In this respect they differ markedly from the pottery of the kitchen middens on the west of Scotland, and also from that of the brochs. The curvature of the sherds indicates that the vessels were of fairly large dimensions, but not enough pieces of any pot could be put together to show the original size and form; in

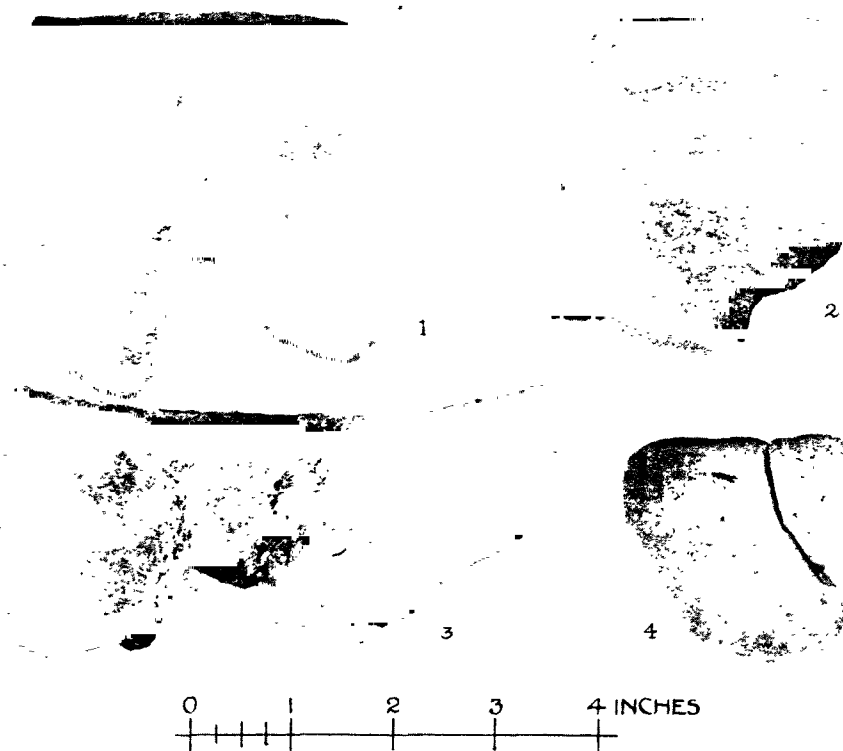


Fig. 11. Specimens of Native Pottery from the various levels.

thickness they average about $\frac{7}{16}$ inch, though some pieces exceed half an inch. In addition to the large coarse cooking-pots there was represented a much finer vessel, presumably a beaker, made of washed or refined clay, smaller in size, with thinner walls not exceeding $\frac{5}{16}$ inch in thickness, and revealing in section in each example a straight side and a simple rounded lip (fig. 11, No. 4). The difference in character is apparent in contrasting the sections, that shown by fig. 14 from the upper level being of the last-mentioned quality. As one rises to the second level, a marked diminution is noticeable in the supply of the native pottery;

and by the time one reaches the uppermost level of all it has practically ceased. Fig. 13 shows the sections of fragments found on the



Fig. 12. Sections of Rims of Native Pottery from lowest levels. ($\frac{1}{2}$.)

second level, and fig. 14 that of the only native sherd found on the uppermost level. On Area C a few fragments came from the bed of

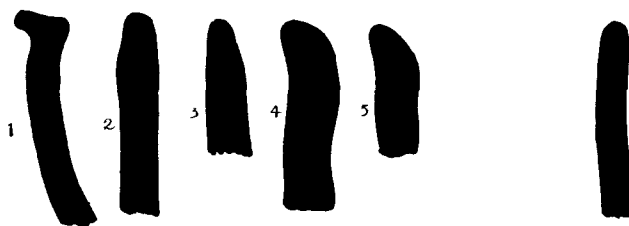


Fig. 13.

Fig. 14.

Sections of Rims of Native Pottery: fig. 13 from second level; fig. 14 from uppermost level. ($\frac{1}{2}$.)

clayey soil which overlay the second level, and on Area B some fragments of one of the more finely made cups alone came from the top.

From all three levels came fragments of Roman pottery: little in

proportion to the native ware from the lowest level, a considerable excess over the native ware from the second level, and a smaller but still an appreciable amount from the top, where native ware was virtually unrepresented. Most of the fragments are small, but a careful collation gives the following results. Of *terra sigillata* there are the remains of twenty-six different vessels. Of these twelve came from the lowest level, ten from the second level, and four from the top. Of vessels of other Roman wares some eighty-four appear to be represented, coming in the proportions of thirty-one from the lowest levels, thirty from the second, and twenty-three from the latest occupation. This gives a total of 110 Roman pots in this small area.

An examination of the *terra sigillata* fragments gives the following results¹ :—

1. *Fragments of Vessels of Undecorated Type.*

1. The cup, type Dragendorff 27, occurs three times—twice from the lowest level and once from the second. All three pieces might belong to vessels possibly made before the end of the first century. One piece which came from the earliest occupation of Area B is particularly suggestive of the pottery of an early date from the brilliance of the glaze and the hardness of the body.

2. One fragment from the upper level appears to belong to a large platter, one of the many later developments of type Dragendorff 18, approximately the same as the type No. 10 from the Pudding Pan Rock Collection (*Proc. Soc. Antiq.*, 2nd ser., vol. xxi. p. 279).

3. A small fragment from the lowest level belongs to a vessel which appears to approximate to type Dragendorff 18. There is nothing, however, to suggest for it a first-century origin except that it is on the whole of moderate thickness, and the form of the lip is not exaggerated.

4. A portion of the rim of a large bowl from the upper occupation level might approximate to the Pudding Pan Rock type No. 9 (*ibid.*). It is rather coarse and probably of second-century date.

2. *Fragments of Decorated Vessels.*

1. From the lowest level.

(a) A fragment of the rim of a bowl, type Dragendorff 37. From the narrow rim above, the usual egg and tassel moulding, and general character of the fragment, a first-century origin is strongly suggested.

¹ I am indebted to my brother, Mr James Curle, F.S.A. (Scot.), for notes on the *terra sigillata*.

- (b) (Fig. 15, No. 1.) A small fragment, also of a bowl 37, the design of which suggests a first-century origin.
- (c) (Fig. 15, No. 2.) A fragment of a bowl, also of type 37, with medallion decoration, the subject of which is unidentified.
2. From the second level.
- (d) A fragment of the upper part of a globular vase, type Déchelette 67. This is a first-century type, and the dish of which this is a fragment may have belonged to that period. The example seems to have been of rather larger size than those found at Newstead (*A Roman Frontier*



Fig. 15. Fragments of decorated Samian Ware. (3.)

- Post*, plate xxxix. figs. 7 and 8); it shows no part of the decoration.
- (e) (Fig. 15, No. 3.) A small fragment of a bowl by Cinnamus, bearing a portion of the name. It is of second-century Lezoux ware.
- (f) (Fig. 15, No. 4.) A fragment of a bowl, type 37, from Lezoux, showing a figure of a gladiator in a large medallion (Déchelette type 117); of second-century origin.
- (g) (Fig. 15, No. 5.) A fragment of a second-century bowl, type 37, with a floral design.
- (h) A fragment of the rim of a bowl, type 37, coarse and rather late.
- (i) (Fig. 15, No. 6.) A fragment of another bowl, type 37, with what appears to be metope decoration. The floral orna-

ment has not been identified. It has a somewhat Germanic character and may possibly belong to the Trajan-Hadrian period.

3. From the uppermost level.

(j) A fragment of the rim of a large coarse bowl, type 37, showing none of the decoration; of second-century date.

(k) A fragment of the base of a small bowl or globular vase too small for identification.

3. *Fragments of Unglazed Roman Pottery.*

The fragments of unglazed pottery are for the most part small, but all the larger pieces are illustrated in figs. 16 to 18, and sections are given in fig. 19.

(a) *From the Lower Levels.*

Fig. 16, No. 1; sec. fig. 19, No. 4. Portion of the neck and lip, the latter much everted, of what appears to have been a fairly large vessel; the ware is burnt to a red colour, and it seems to have been coated with a yellowish slip on the outer surface.

Fig. 16, No. 2; sec. fig. 19, No. 1. A grey burnished ware ornamented with a series of narrow bands with a matt surface; the lip is considerably everted.

Fig. 16, No. 3. The base and a portion of one side of a small globular vessel of a light brown colour, coated on the exterior and partially on the interior with a buff slip.

Fig. 17, No. 2; sec. fig. 19, No. 2. Cooking-pot of a brownish tint on the sides, which are rough and ornamented with a lattice pattern, while the neck and lip are darker in hue, and polished.

Fig. 16, No. 5. A rather thin red ware covered on the exterior surface with a black slip and decorated with rows of short impressions produced by a roulette. On the shoulder there is formed a slight overhanging ridge, and this, I am informed by Mr Thomas May,¹ is characteristic of a particular type of bulbous beaker ornamented with roulette impressions and of fourth-century date. This being so, it is difficult to account for this late example being found in the bottom level.

Fig. 18, No. 1. Grey ware decorated with lightly impressed and burnished vertical lines.

¹ I am indebted to Mr May for the following references:—May, *Roman Pottery in York Museum*, plate xi. 7; "Roman Camp at Housesteads," *Archæologia Æliana*, xxxv. p. 297, fig. 55. Roach Smith, "Roman Sepulchral Remains found at Stroud, in Kent," *Collectanea Antiqua*, i. p. 17.

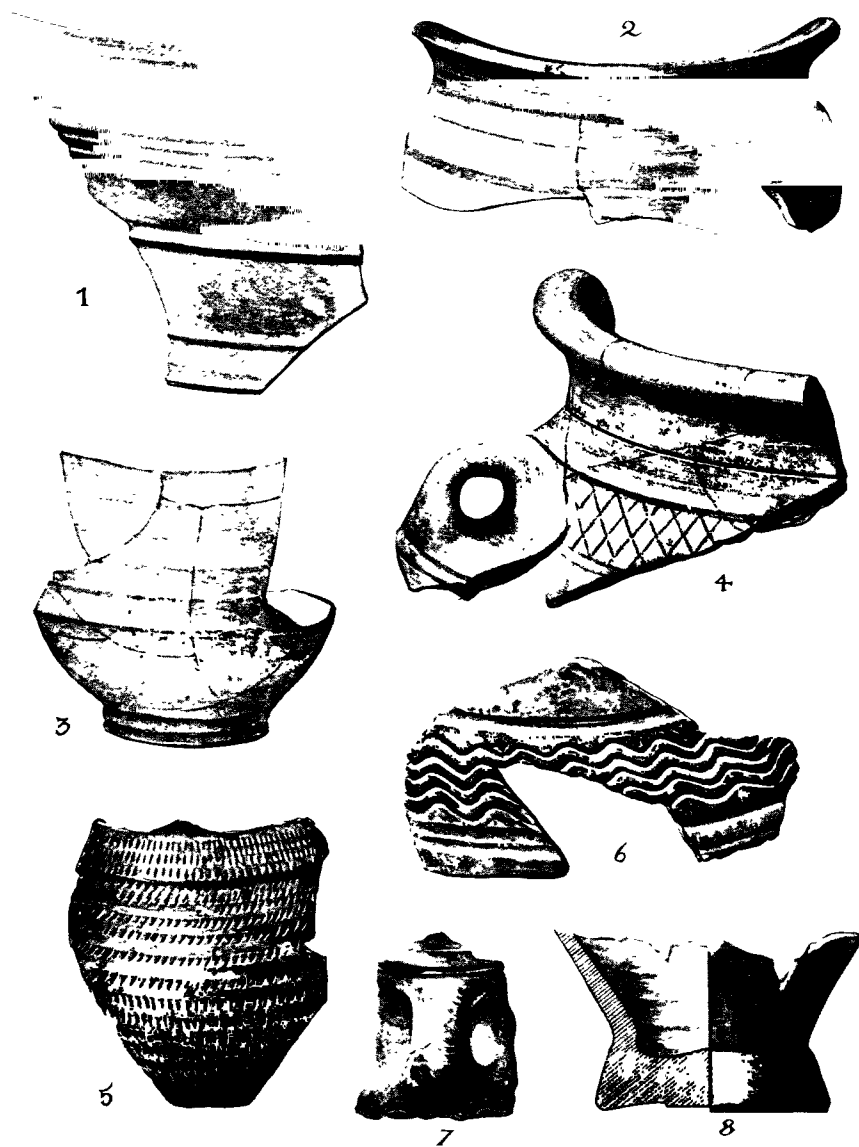


Fig. 16. Fragments of unglazed Roman Pottery. (3.)

Fig. 18, No. 2. Grey ware with lightly impressed lattice ornamentation.

Fig. 18, No. 3. Grey ware with a lightly impressed and burnished scroll ornamentation.

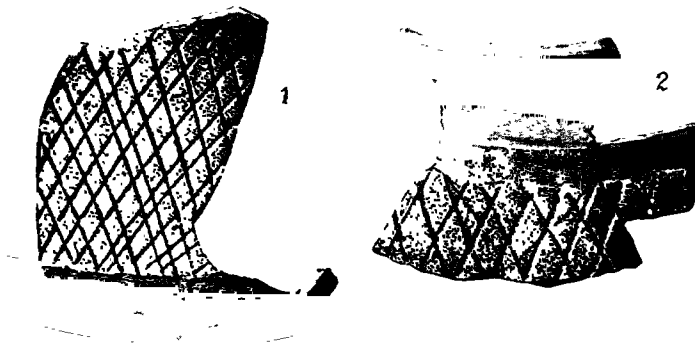


Fig. 17. Fragments of Cooking-pots with lattice ornamentation.

(b) *From the Second Level.*

Fig. 16, No. 4: sec. fig. 19, No. 6. Portions of the mouth and shoulder of a globular vessel of light grey colour, of fine texture, made from well-washed clay; the lattice ornament on the shoulder is lightly im-

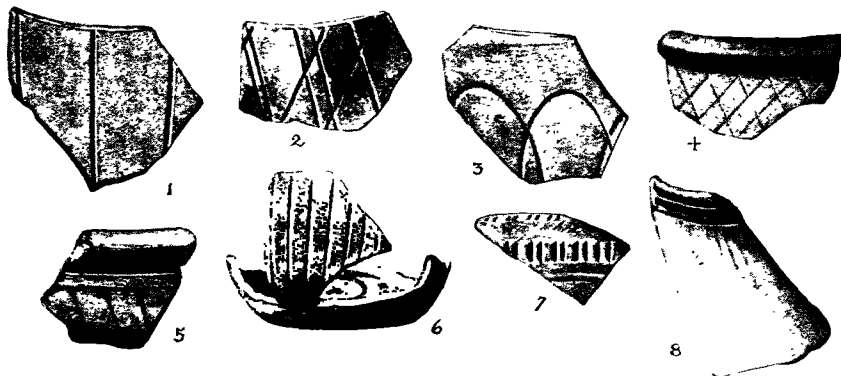


Fig. 18. Fragments of unglazed Roman Pottery. (4.)

pressed; the side of the pot has been slightly pressed inwards in the formation of the loop-like handle.

Fig. 17, No. 1. Portion of the side and the base of a cooking-pot, similar to fig. 17, No. 2.

Fig. 18, No. 6. The base and portion of the side of a small grey vessel which has been decorated with vertical burnished lines.

Fig. 18, No. 4; sec. fig. 19, No. 10. Portions of the lip of a dark grey cooking-pot.

Fig. 18, No. 5; sec. fig. 19, No. 12. Portions of a similar vessel, but of a lighter shade of colour.

Fig. 19, No. 3 (section only). Small fragment of grey ware.

Fig. 19, No. 5 (section only). Fragment of the lip of a vessel of a brownish-grey colour, and of a hard ware showing many particles of mica in the body.

Fig. 19, No. 7 (section only). A small fragment of the mouth of a vessel of light red-coloured ware.

Fig. 19, No. 8 (section only). Portion of the lip of a vessel of a hard ware, grey in colour.

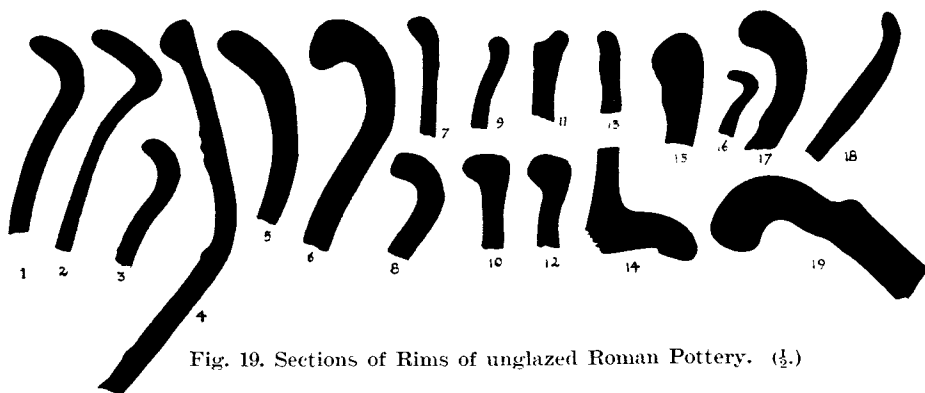


Fig. 19. Sections of Rims of unglazed Roman Pottery. ($\frac{1}{2}$.)

Fig. 19, No. 9 (section only). Fragment of a thicker ware of light-red colour.

Fig. 19, No. 11 (section only). A very small fragment of the lip of what appears to have been a small vessel of light buff ware.

(c) *From the Highest Level.*

Fig. 16, No. 6. One of several fragments of a thick, black, rather coarse ware ornamented around the shoulder with a band of impressed wavy lines.

Fig. 16, No. 7. Loop-like handle, apparently part of the same vessel as the last; the side of the vessel has been pressed in by the formation of the loop.

Fig. 16, No. 8. The greater part of the base of a vessel of buff ware coated with a chocolate-tinted slip; the base is solid and bung-shaped. Mr Thomas May recognises this fragment as the base of a beaker of a ware resembling Castor ware, an example of which was found at

Pevensey¹ and assigned to the fourth century. Similar bases are met with on vases from the New Forest kiln-wastes of the latest Roman period.

Fig. 18, No. 7. A very small portion of a vessel of reddish colour which has been ornamented with parallel lines of roulette impressions.

Fig. 18, No. 8; sec. fig. 19, No. 18. Portion of the shoulder of a vessel of light red colour decorated with burnished vertical lines.

Fig. 19, No. 13 (section only). Fragment of the lip of a vessel of hard buff ware.

Fig. 19, No. 14 (section only). Portion of flange of light tile-red coloured ware on which remain traces of a thin black slip. This appears to be a fragment of a flanged bowl resembling, in imitation of Samian ware, form Dragendorff 38. Two bowls of the type and fragments recovered from potters' kilns in 1879 at Sandford Farm, Littlemoor, near Oxford,

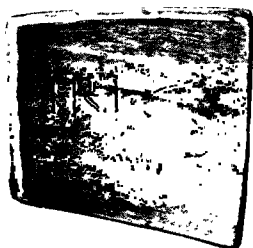


Fig. 20. Inscribed Sherd. ($\frac{3}{8}$.)

are preserved in the Ashmolean Museum; and specimens were obtained decorated with conventional patterns in white slip at Pevensey.² A fourth-century date is assigned to the type.³

Fig. 19, No. 15 (section only). Portion of the mouth of a vessel of heavy grey ware, the moulding of the lip somewhat flat.

Fig. 19, No. 16 (section only). Fragment of the lip of a small vessel of red ware; the lip is much everted, and around the neck are two parallel incised lines.

Fig. 19, No. 17 (section only). Fragment of the lip of a vessel of coarse black ware, the surface much weathered off.

Fig. 19, No. 19 (section only). Fragment of the lip of a mortarium. This fragment came from the second level of Area C and appears to be of the Antonine period.

Having an interest greater than that attributable to the pottery itself is a portion of the side of a vessel of grey ware, fig. 20, on the inside

¹ *Sussex Archaeological Collections*, vol. li., plate xv. No. 1.

² *Ibid.*, vol. lii., plate ix. Nos. 2 and 5.

³ For the identification of this specimen and for the references to the discovery of the type elsewhere I am indebted to Mr Thomas May.

of which are incised in Roman characters the letters "I R I" and a stop. It came from the second level, and as other pieces presumed to be parts of this vessel were also found there, as well as from the fact that the letters appear on the interior surface, the assumption is justified that the latter were scratched on the hill itself.

II. PERSONAL ORNAMENTS.

Under this head come fibulæ, pins, clasps, and other small objects of bronze. The number of such articles is remarkable considering the

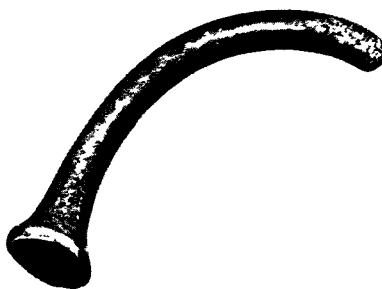


Fig. 21. Portion of a Penannular Armlet of Bronze. (†.)

small area excavated; the majority of them came from the lowest level. At the very bottom of this stratum, almost in the subsoil, there

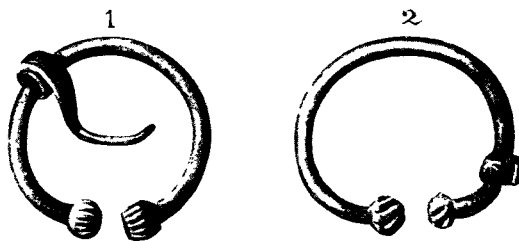


Fig. 22. Penannular Brooches of Bronze. (†.)

was found a portion, about one-third of the whole, of a penannular armlet of bronze (fig. 21), with a flattened expanded termination. This is of a common Bronze Age type.

Two penannular brooches in the collection, with small fluted knob terminals (fig. 22), came, one (No. 2) from the lowest level, and the other (No. 1) from what appeared to be a slightly later occupation at a level only some 6 inches higher. The type is a common one on Roman sites in this country. It was found at Newstead; and an identical specimen to fig. 22, No. 1, and covered with an equally beautiful patina, is

among the relics found in the recently excavated Roman fort at Bemulie, near Glasgow.

A fragment of another penannular fibula, of small size and with a plain knob terminal, came from the second level.

There are seven bow-shaped fibulæ, of which four came from the level of the earliest occupation, one from the stratum immediately superimposed, one from the second level, and one from the top. The four from the earliest occupation (fig. 23, Nos. 1, 3, 4, and 7), include two knee fibulæ (Nos. 3 and 4). The pin of each has worked on a spring which, as usual in the type, is contained in a semi-cylindrical casing. No. 3 is of a form commonly found on Roman sites of the Antonine period, specimens coming from the fort at Newstead,¹ from Camelon,² and from Wroxeter.³ The shape of No. 4 is somewhat slighter than that of the usual knee fibula, and the peculiar characteristic which gives its name to the type is less pronounced; it has also a small ring attached to it at the head. It is further remarkable for the remains of silver plating which may be observed upon it, a small rosette still remaining on one side towards the foot of the fibula, and a short bar above the spring cover.

The third fibula from the same level (No. 7) much resembles, in form and scheme of decoration, a brooch found in the Victoria Cave, Settle.⁴ Along the top of the bow runs a row of lozenge-shaped spaces filled with pale blue enamel, while triangular points of yellow enamel fill the angles between, along both sides. A recess at the head has held a boss, now wanting. A semicircular ridge or crest rises at the back of the head and has a groove running down the centre of it. A somewhat similar crest appears on the fibula shown in fig. 24, No. 3.

The fourth bow-shaped fibula from the lowest level (fig. 23, No. 1) is of a type perhaps best known from the pair of silver-gilt brooches found at Backworth in Northumberland. A number of examples were recovered at Newstead, some of them richly ornamented with enamel and chasing. This brooch is quite devoid of any enrichment, though its lines are graceful, and the floriated knob in the centre of the bow is well executed. It has a spring for the pin, and the axial wire of the spring, caught in by a collar, forms a loop at the back of the head. The example from Newstead which it most nearly resembles is one found in one of the chambers at the rear of the *principia*, a find-spot believed to be not earlier than the middle of the second century.

The fibula (fig. 23, No. 6) from level 1A, just above that of the lowest

¹ James Curle, *A Roman Frontier Post*, plate lxxxvii. figs. 31 and 32.

² *Proceedings*, vol. xxxv. p. 402, fig. 43.

³ Bushe-Fox, *Excavations at Wroxeter, Shropshire*, 1912, p. 25, fig. 9, No. 4.

⁴ Boyd Dawkins, *Cave Hunting*, p. 99, front. fig. 1.

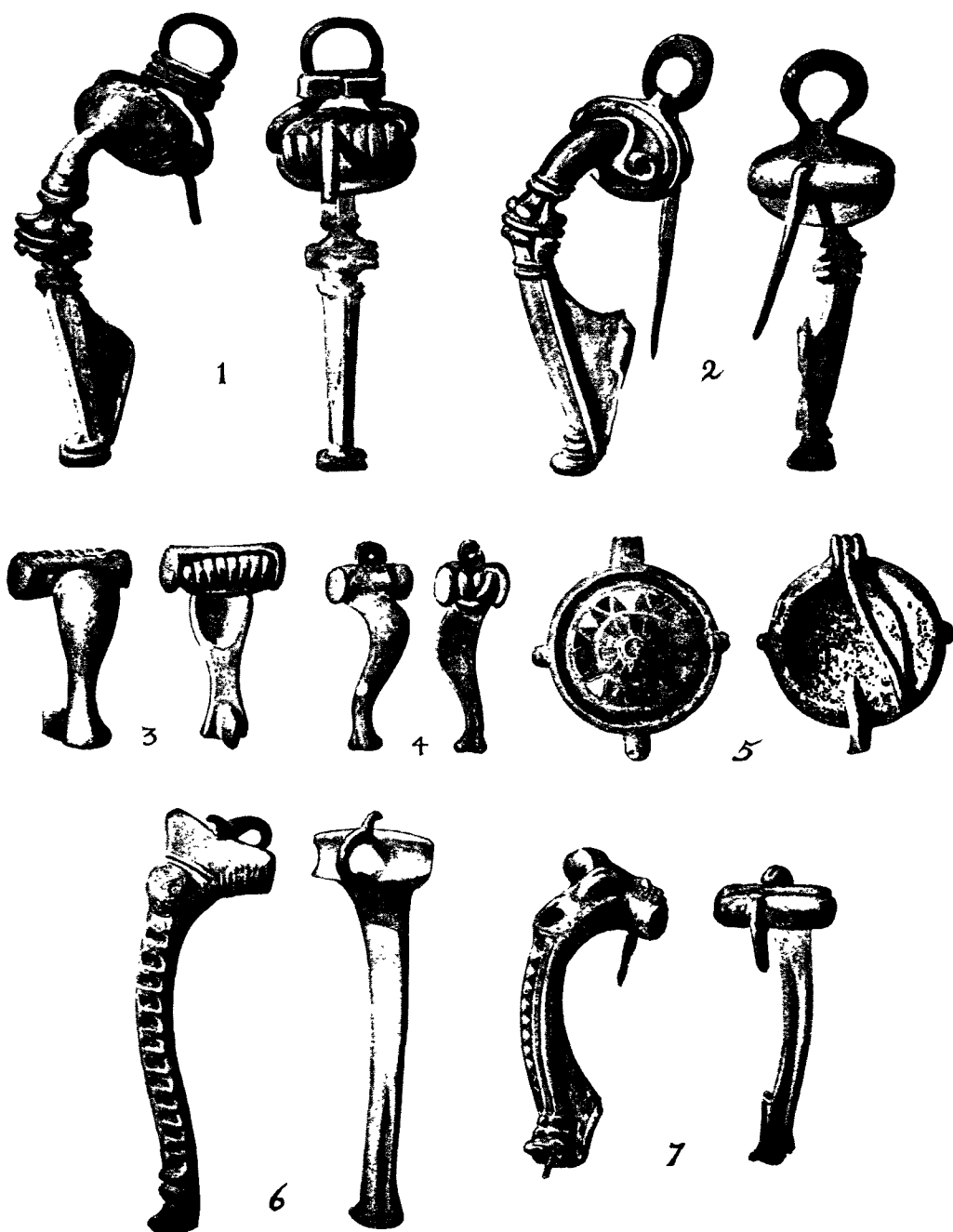


Fig. 23. Fibulae from the lower and second levels. (†.)

occupation, was found on a paving of stones towards the north end of Area B, which probably represented a hut site. It measures $2\frac{1}{4}$ inches in length; the bow, which has a flat curve, has been enriched with a series of rectangular compartments of enamel only one of which now retains the material, red in colour. There is a boss towards the head end of the bow, and at the back a small hook which has held the main loop of the spring, now wanting. This is a fairly common type of brooch, several examples of which were found at Newstead,¹ while one occurs among the hoard of Romano-British relics found many years ago on Lamberton Moor, Berwickshire, and now in the National Collection.² This particular example, however, shows features which give it a place midway in development between the specimens from these two places. The Lamberton Moor brooch is enamelled along the bow with a similar series of oblong compartments; it is further furnished with a spring, as is this example, the loop of the spring passing across the back of the head, and being caught up on a hook fastened to the end of the bow by a stud. While the Traprain brooch still retains the hook, and has originally had the spring, the stud which held the former has developed into a purely ornamental boss. When we turn to the Newstead fibulæ we find that the spring has given place to a hinged pin, and that with the spring the hook has also vanished. Most of the Newstead brooches of this type were found near the surface; one came from an outer ditch of the extended fort, thus affording negative evidence that it could not belong to the first occupation. The majority of them were assigned to the Antonine period.

Associated with the two knee fibulæ (fig. 23, Nos. 3 and 4) in the lowest level of Area A, and found within a few feet of either of them, was a disc fibula (fig. 23, No. 5) complete with its pin. It is beautifully enamelled over its convex surface with triangular spaces of red, white, and blue enamel, now unfortunately much tarnished with copper oxide. A similar brooch was recently found at Wroxeter³ associated with two coins of the Emperor Vespasian; another resembling it came from Camelon, and is now in the National Museum;⁴ Newstead yielded yet another, rather more elaborate, from the baths; and one appears to have been found at Corstopitum in 1908.⁵

From the second level on Area D came another fibula (fig. 23, No. 2) of the same type as fig. 23, No. 1. In the lapse of time which occurred between the two occupations from which these brooches were respectively

¹ *A Roman Frontier Post*, p. 323, plate lxxxvi. figs. 19 to 22.

² *Proceedings*, vol. xxxix. p. 367; illustrated in *A Roman Frontier Post*, p. 320, fig. 46b.

³ *Excavations at Wroxeter, Shropshire*, 1912, p. 26, fig. 10, No. 9.

⁴ *Proceedings*, vol. xxxv. p. 405, plate A, fig. 2.

⁵ *Corstopitum Report*, 1908, p. 100.

recovered, the type has suffered a slight modification; the form is unchanged, but in place of the pin working on a spring, as in the earlier example, a simple hinged pin has been employed, and, as a corollary, the loop at the back previously formed from a wire passing axially through the coils of the spring has, with the loss of the spring, become an integral part of the brooch. On the trumpet-shaped head there is on either side a single volute, the last fading expression of the characteristically late-

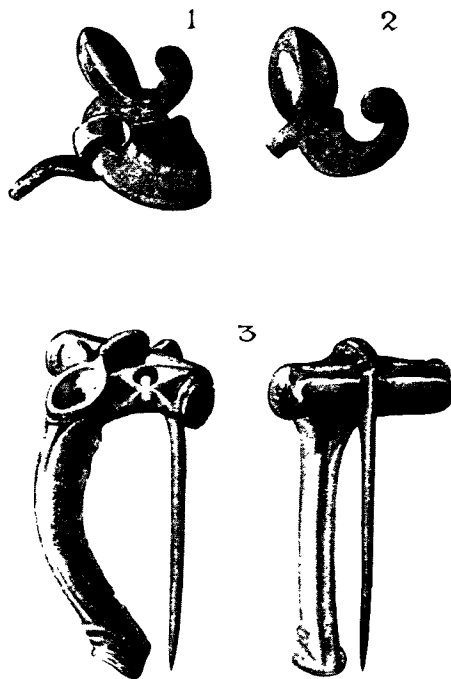


Fig. 24. Fragments of dragonesque Fibulae from the lowest level, and a bow Fibula from the highest level. (†.)

Celtic enrichment which distinguishes the finer brooches of this class found at Newstead and approximately dated, from their find-spots, to the first half of the second century of our era. Traces of tinning are still to be seen on the bow.

The last of the bow fibulae (fig. 24, No. 3) is one of the few relics from the upper level of occupation. It appears to be allied in type to fig. 23, No. 7. The bow is rounded and plain; there is a cavity in the head which has contained a boss, and the pin is hinged. On the sides, which form a continuous curve into either end of the head, is a device in enamel consisting of two opposing crescents of deep blue, facing inwards between two triangular compartments, now too much decayed for the

colour to be recognised. The form bears some resemblance to a fibula found at Corstopitum in 1910.¹ On the head end of the bow, between the cavity from which the boss has been removed and the crosspiece, there rises a thin semicircular crest, with a slight groove along the top. This appears to be a rudiment of a loop employed to hold in position the axial wire of the spring in the same manner as the hook referred to above: a somewhat similar feature may be seen on fig. 23, No. 7. Fibulæ illustrating this arrangement were found by General Pitt-Rivers in his excavations at Rotherley and Bokerley Dyke.²

The lowest level further yielded two fragments of the "S" or dragonesque fibula (fig. 24, Nos. 1 and 2), a characteristically Celtic ornament of Romano-British times, and generally dated to the second century. Each of these fragments is a head or terminal portion. The larger of the two (No. 1) consists of the head, about one-third of the body, and a portion of the pin, which, as in all other specimens of the type, works on the neck of the brooch round which it is bent. The bronze of which the fibula is made is somewhat decayed, but there is no indication that there has been any enamelling on the remaining portion. As, however, these brooches were frequently enamelled on the centre of the curving body, the part amissing may have been so enriched. The metal is thin, and the appearance of the head is less pleasantly artistic than in most specimens of the class; the leaf-shaped, ear-like projection is somewhat narrow; the "snout," ending in a slight knob, has a restricted curve and does not turn back spirally, and the space in the body through which the pin turns is merely large enough to serve its purpose, and has not, as in the generality of examples, been treated as an artistic feature. It is worthy of remark also that no eye appears upon the head. This fibula somewhat resembles one found at Corstopitum in 1910,³ except that the latter is enamelled: it probably comes late in the series. No. 2 is a smaller fragment, consisting merely of the "ear" and the "snout." These features are more in keeping with the type as known to us; the ear has been enamelled, probably in red, though the colour has gone, and the snout is considerably recurved. An enamelled brooch of this type was found at Newstead,⁴ and another is in the collection of objects found on Lamberton Moor.⁵ These appear to be the only recorded previous finds in Scotland, though a

¹ *Corstopitum Report*, 1910, p. 40, fig. 13.

² Pitt-Rivers, *Excavations in Cranborne Chase, etc.*, vol. ii., plate xcvi. fig. 4; vol. iii., plate clxxv. fig. 3.

³ *Corstopitum Report*, 1910, p. 45, fig. 28.

⁴ *A Roman Frontier Post*, p. 320, plate lxxxv. fig. 7.

⁵ *Ibid.*, p. 320, fig. 46a.

considerable number have been reported from England, chiefly from the north.¹

A T-shaped fragment of silver, $\frac{3}{8}$ inch in length, from the lowest level may possibly be a part of a very small bow-shaped fibula.

Four complete bronze pins were found, besides fragments of one or two others. Fig. 25, No. 1, measuring $3\frac{3}{4}$ inches in length, came from the lowest level on Area A, and appears to be of a type similar to one found at Newstead,² though the latter is believed to have had a small circular setting of red enamel on the head. The stem has been encircled at intervals with bands of incised rings. A stem only, of bronze, incised with similar rings came likewise from the lowest level, as did also the upper end of another bronze pin with a flattened knob-head of small diameter (fig. 25, No. 4).

From the second level on Site A, associated with a number of pieces of second-century Samian ware, there came a bronze shoulder-pin (fig. 25, No. 3), with a ring head bevelled to the inside. A similar pin was found in the Ness broch at Freswick, Caithness, while others of iron, without the bevel, were discovered respectively in the kitchen-midden at Gallanach, Oban, in the fort at The Laws, Monifieth, Forfarshire, and in the Iron Age burial at Moredun, near Edinburgh.³

On the second level also, but on the adjacent Area B, was found a pin (fig. 25, No. 2) of a type known as the hand-pin, from a fanciful resemblance it presents to a closed hand, the flat lower plate representing the palm, while the pellets, which form the upper segment, denote the knuckle-joints of the folded fingers. Like the last noted, this pin is purely of Celtic character, though I do not think that we have another of identical form in the National Collection. One with four pellets was found at Corstopitum in 1910,⁴ and is figured alongside of a pin of the type of fig. 25, No. 3, found in the same year. The Traprain specimen has been coated with tin, and still retains on its surface a considerable amount of that metal. Its length is $3\frac{1}{16}$ inches.

A long thin pin of bronze wire, $4\frac{7}{16}$ inches in length, tapering to one end, is shown in fig. 25, No. 6. It is much wasted at the head, and its features are barely determinable.

Fig. 25, No. 7, also of bronze, is very suggestive of a swan-neck pin, but the metal is much decayed and the object imperfect at both ends, so that I do not consider that a definite determination is justified. It

¹ In an appendix to the *Corstopitum Report*, 1908, p. 116, Professor Haverfield gives a list of recorded finds up to that date.

² *A Roman Frontier Post*, p. 337, plate xcii. fig. 11.

³ *Proceedings*, vol. xxxviii. 1906, p. 433 *et seq.*, figs. 5, 7, and 8.

⁴ *Corstopitum Report*, 1910, p. 47, fig. 34.

much resembles a pin found in the Happy Valley, Woodendean, near Brighton, along with a small bronze boar.¹ The swan-necked pin, how-

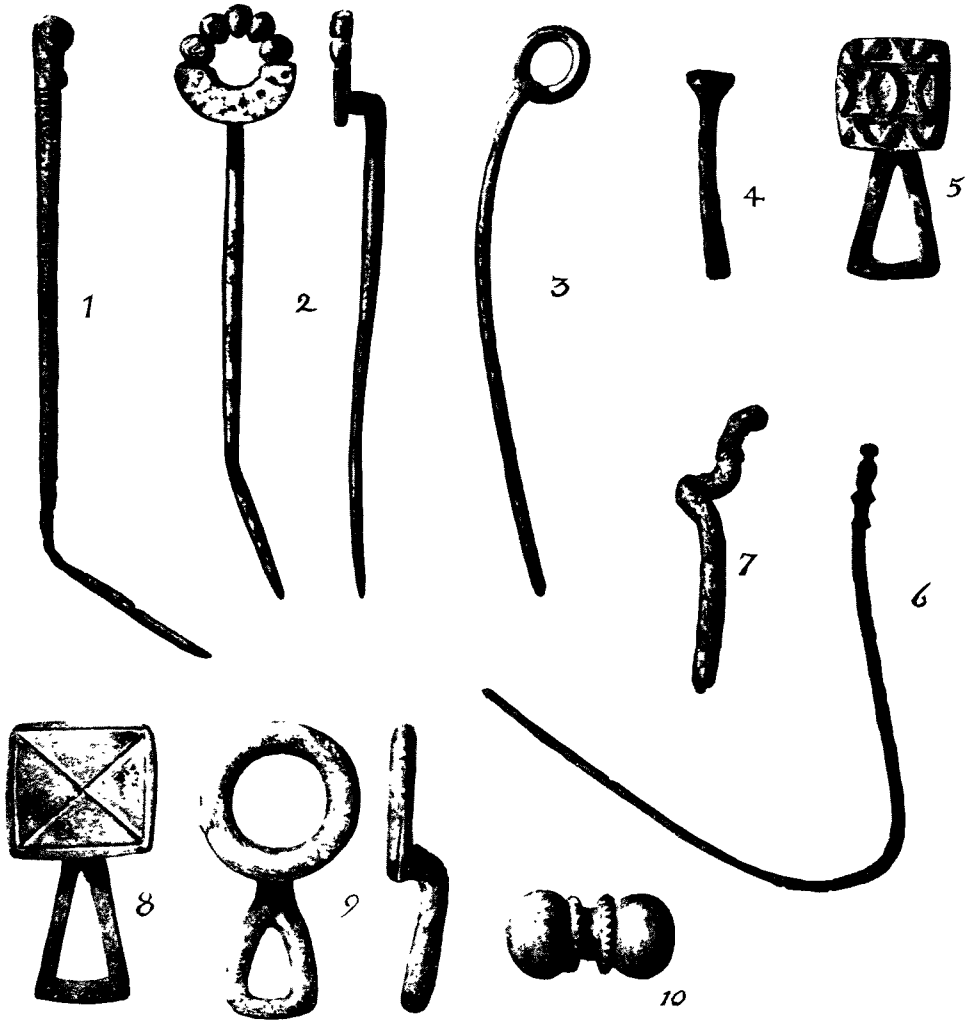


Fig. 25. Bronze Pins and Clasps. ($\frac{1}{4}$.)

ever, belongs to an early period of the Iron Age, and this particular object was found on the highest level of occupation.

A dumb-bell-shaped button of bronze (fig. 25, No. 10) came from the lowest level on Area C. Two bronze buttons of this type were found

¹ *Proceedings of the Society of Antiquaries*, Second Series, vol. xxi. p. 489.

at Newstead, one of them very similar to this;¹ another is reported from Wroxeter.²

Fig. 25, Nos. 5, 8, and 9, are clasps, probably for garments, the triangular portion being presumably passed through a slit in one side of a garment and sewn on to the material, while a loop fastened to the other side was passed over the head to complete the fastening. Two of these objects, Nos. 5 and 8, were found on the lowest level, while No. 9 came from the top. No. 5 has been enamelled, the central panel containing oval spaces of blue on a white ground, while the triangular spaces on the two borders have been filled with scarlet. Various examples of these clasps were found at Newstead.

The pin-like object from the second level illustrated in fig. 26, No. 2, must, I think, be an awl for piercing leather. It is of bronze, $2\frac{3}{8}$ inches in length, and has a triangular head folded over at the end. The long flat head would be unsuitable for a pin, as the rapid increase in breadth from the stem would give it a tendency to slip out of any garment it had been thrust into, whereas the broad head could be held comfortably between the finger and thumb if the object was to be used for piercing. A relic of almost identical form and dimensions, but lacking the rolled termination, was found with others in a fort in Ostergötland, Sweden, dated about 400 A.D., and was regarded as an arrow-point,³ but for such an end the rolled head makes the Traprain specimen unsuitable; it would not have assisted the fastening, it is probably broader than an arrow-shaft would have been, and it does not conform to its curve.

Fig. 26, No. 1, from the second level of occupation, is a terminal for a strap, notched at the point so as to be used as a nail-cleaner or, perchance, a scratcher; or its uses may be reversed, and as a nail-cleaner it may have been attached to the girdle by a leather strap, a small portion of which still remains in the forked head. Toilet instruments of this nature, found either singly or associated on a ring with an ear-pick and tweezers, are known on the Continent from the later Hallstat or early La Tène periods.⁴ Objects of bronze with somewhat similarly notched ends, described as nail-cleaners, were found by General Pitt-Rivers in his excavations at Rotherley, Bokerley, and on Handley Hill and Handley Down;⁵ and a similar use may conceivably be assigned to a small iron object with a bifurcated termination, found in

¹ *A Roman Frontier Post*, plate lxxxii. figs. 6 and 8.

² Bushe-Fox, *Excavations at Wroxeter, Shropshire*, in 1913, p. 14.

³ "Opuscula Oscar Montelio," *Die Vorgeschichtlichen Burgwälle in Schweden*, p. 342, fig. 20.

⁴ Déchelette, *Manuel d'Archéologie*, "Archéologie Celtique," p. 880.

⁵ *Op. cit.*, vol. ii., plate cii. fig. 7; plate ciii. fig. 8; vol. iii., plate clxxiii. fig. 8; vol. iv., plate 258, fig. 10.

the Buston Crannog, and illustrated by Dr Munro in *Ancient Scottish Lake Dwellings*, p. 227, fig. 240. The dot and circle ornamentation is common on objects of the later Iron Age period, and may be seen in use on a pair of tweezers from Newstead,¹ and on combs of bone from brochs, etc., and it continued to be employed in mediæval times. This is a graceful object, made of bronze which has taken on a fine patina,

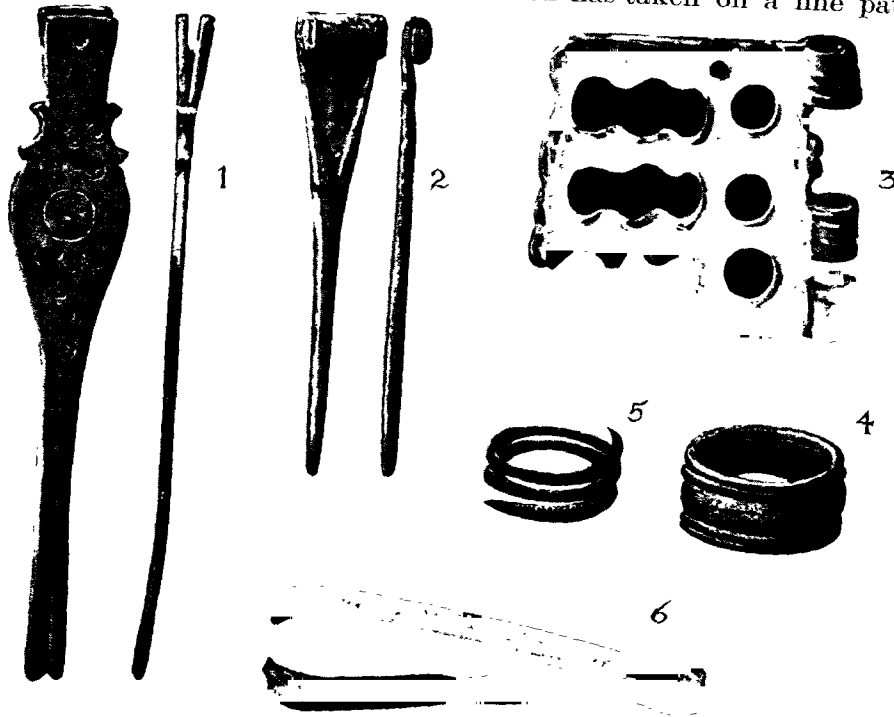


Fig. 26. Strap terminal, Awl, portion of a Clasp, Rings, and Tweezers. ($\frac{1}{4}$.)

in this last respect differing from the majority of the bronze articles found on the site.

From the same level as the last came the object represented by fig. 26, No. 3. It is a pierced plate of bronze, and has been one-half of a hinged clasp probably fastened to leather. The design is poor and has been produced by a drill, the longer piercings being made by three overlapping applications. Clasps of this nature are not uncommon on late Roman sites, but as a rule they show more artistic merit than this one does. It may be compared with one found at Kastell Zugmantel on the German Limes.²

¹ *Frontier Post*, plate xcii, fig. 8.

² *Saalburg Jahrbuch*, 1910 (*Kastell Zugmantel*), Taf. viii.

The pair of tweezers of bronze (fig. 26, No. 6) came from the highest level. Such articles are of very common occurrence on Romano-British sites, and were probably employed for depilatory purposes. Two pairs were found at Newstead.¹ They were likewise frequently found by General Pitt-Rivers in his excavations;² they have also been found at Knap Hill and Casterley Camps in Wiltshire.³ and in large numbers in the Glastonbury Lake Dwelling.

Another personal relic of bronze is a spiral finger-ring (fig. 26, No. 5) consisting of two and a half coils of a thin plano-convex strip of metal, tapering markedly to one end where it is notched along the edge. In diameter it measures $\frac{2}{3}\frac{1}{2}$ inch; it came from the lowest level on Area A. Such finger-rings are by no means uncommon on Iron Age sites of this period. One of a like number of coils was found in the fort at Castle Law, Abernethy;⁴ another was found in the Hyndford crannog; and a third in the Iron Age cairn excavated a few years ago at the Black Rocks at Gullane.⁵ Fig. 26, No. 4 is a ring of bronze of a different type, which also came from the lowest level, but on Area B. It measures $\frac{11}{16}$ inch in interior diameter and $\frac{3}{8}$ inch in breadth; it is ornamented at each edge with a plain half-round moulding.

Personal ornaments in material other than bronze consisted of beads, armlets, and rings in jet and glass, or kindred material. Dealing with the former first, we have segments of eleven different armlets, mostly from the lowest level, shown, with one exception, in the accompanying illustration fig. 27. The segment not illustrated has been split; it came from the upper level.

As will be observed, these armlets are plain, with the exception of No. 2, which is ornamented with incised parallel lines following the circumference, and cross cuts. The segments vary considerably in thickness, from the fragile specimen shown as No. 6, which must have been very light when complete, to the rather coarse-looking piece, No. 11.

The complete ring and half of another (fig. 27, Nos. 5 and 8) both came from the upper level; while the small ring (fig. 27, No. 3), with an interior diameter of $\frac{1}{2}\frac{1}{2}$ inch, came from the bottom, as did also the portion of a small bead (fig. 27, No. 1). The segment, amounting to almost one-half of a broad ring of shale (fig. 27, No. 15), came from the lowest level on Area C. Fig. 28, No. 1, is an oblong bead of polished jet, faceted on the upper surface, bevelled slightly at the ends, and pierced with two longi-

¹ *A Roman Frontier Post*, plate xcii. figs. 6 and 8.

² Pitt-Rivers, *op. cit.*, vol. i., plate xvi. figs. 13, 17, 18, and 19; vol. iii., plate clxxxii. fig. 8.

³ *Wiltshire Archaeological and Natural History Magazine*, vol. xxxvii. p. 63, fig. 11; and vol. xxxviii., plate i. fig. 7.

⁴ *Proceedings*, vol. xxxiii. p. 31, fig. 16.

⁵ *Proceedings*, vol. xlii. p. 334, fig. 2.

tudinal perforations to ensure its remaining in a correct position when worn. It measures $\frac{13}{16}$ inch in length by $\frac{3}{8}$ inch in breadth, and came

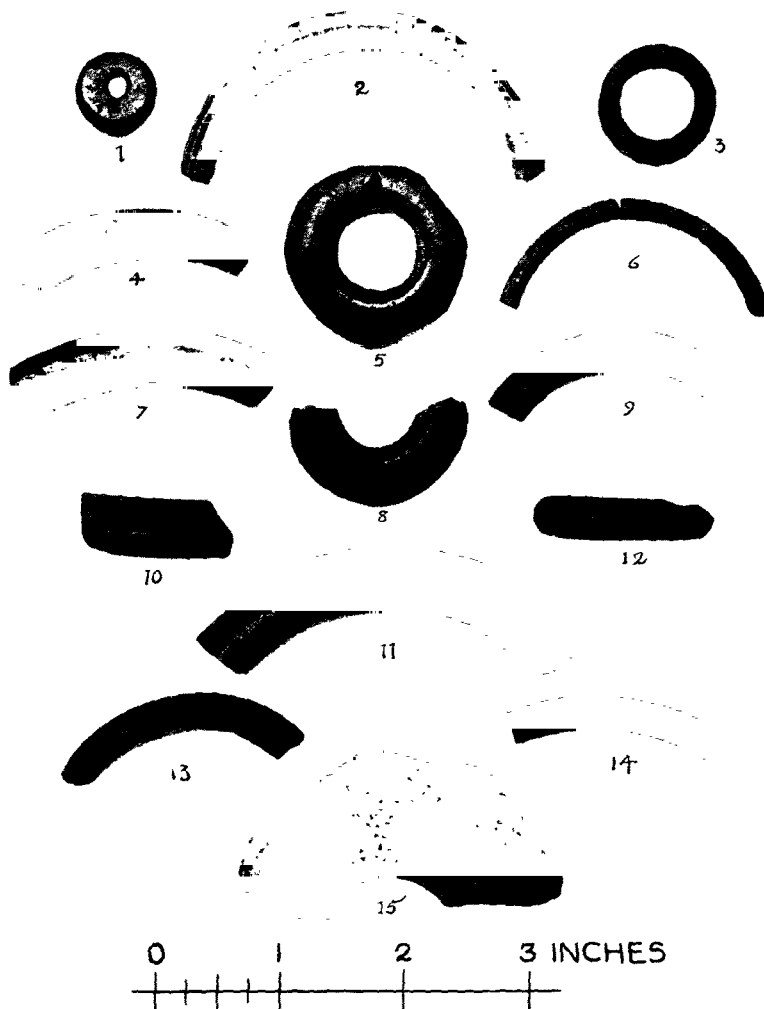


Fig. 27. Segments of Armlets and Rings of Jet.

from the lowest level. The large pin-head of jet (fig. 28, No. 2), shown to natural size, came from the upper level. The pin on which it was set, judging from the size of its socket, was more probably of bone than of metal. A very similar pin-head was found in the excavation of the

Mote of Mark reported by me in last year's *Proceedings*. Such pins were probably worn in the hair, and were the lineal successors of the large spherical-headed pins of Bronze Age times found on the Continent. Owing to the size of the heads they were unsuitable for use in a garment.

There are in the collection fragments of twenty-one different armlets of glass (fig. 29), some of them unfortunately very small. Of these, eleven are self-coloured, six of them yellow and opaque, and five of them opaque white. The yellow pieces, with one exception which came from the second level, were found at the bottom of the excavation. They are rather thicker and more solid than the white bracelets, and in section are triangular: the tint may be described as a canary-yellow. The

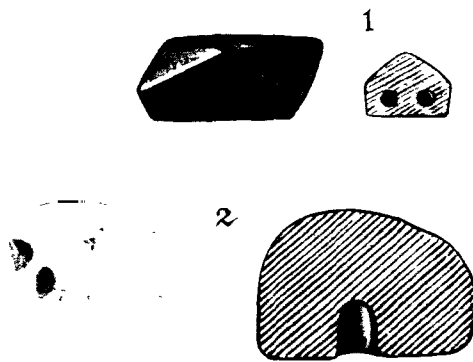


Fig. 28. Faceted Bead and Pin-head of Jet. (1.)

white bracelets, for the most part plano-convex in section, came from all three levels. Of the ornamented bracelets the most common type shows a series of attenuated scrolls pointing along the mesial line, of a different colour from the ground, and produced by spots of coloured glass let into the mass of metal and elongated in the formation of the armlet. In No. 2, from the upper level, the body colour is the palest possible tint of green, in which is incorporated a scroll of thin opaque white. In No. 1, also from the upper level, the ground is opaque white and the scroll brown. In No. 4, from the second level, a bluish-tinted body bears pale yellow streaks. The small fragment shown in No. 6 is of a rather intense blue with bright yellow lines, and is also from the second level. No. 9, from the lowest level, has a greenish body decorated with yellow streaks. A segment of greenish-tinted glass, from the second level, is ornamented with white opaque streaks, and a small piece of a white opaque armlet shows the remains of blue lines on the sides. In addition to the foregoing there is, from the second level,

a portion of an armlet (No. 10) of greenish glass with a cord ornament formed of intertwined blue and white strands running along the mesial ridge of its convex surface, and along each side; and a segment of very unusual occurrence (No. 8) of schmelze glass of a general purplish tint

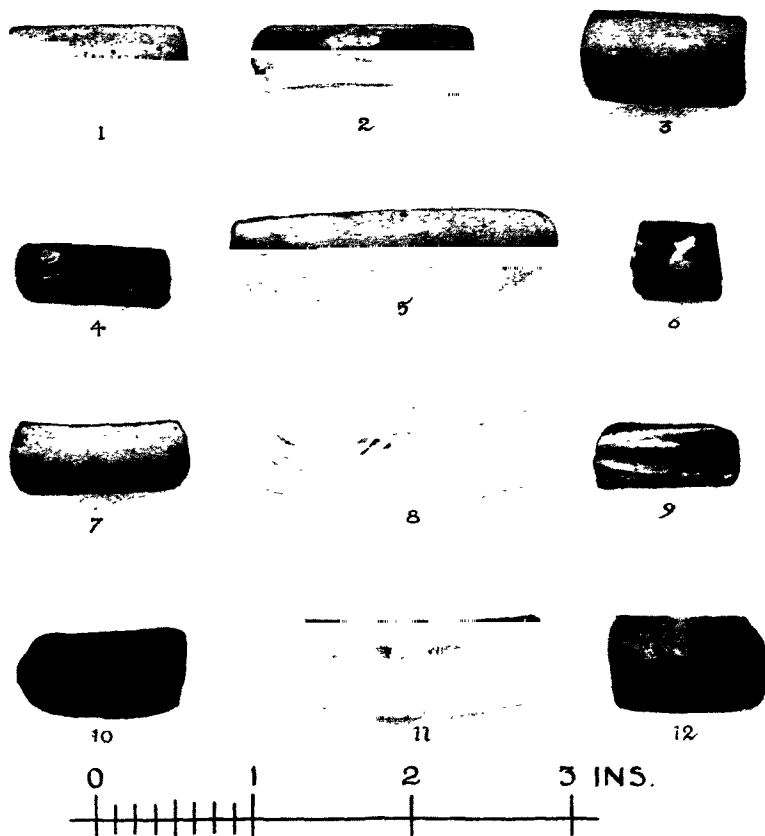


Fig. 29. Segments of Glass Armlets.

found on the lowest level. Portions of armlets such as the foregoing, with the exception of the last, frequently come to light in excavations of Roman and native sites in Scotland. Birrenswark yielded a number, in colour opaque yellow, and white, and also white with scroll pattern. Newstead produced specimens; pieces were found in the crannogs of Hyndford,¹ and Dowalton,² in one of the Archerfield caves near North Berwick,³

¹ *Proceedings*, vol. xxxiii. p. 383.

² Munro, *Ancient Scottish Lake Dwellings*, p. 48.

³ *Proceedings*, vol. xliii. p. 254.

and also in the Borness cave. I have, however, found no record of the finding of a piece of schmelze glass armlet, though certain large beads made somewhat in this fashion have been noted. Portions of two such beads found associated *inter alia* with a Roman onyx intaglio are among the relics from the cairn at Cairnhill, Monquhitter, in Aberdeenshire,¹ now in the National Collection.

Another relic of glass from Traprain, not obviously for personal adornment, likewise finds an analogy among the objects from Monquhitter. This is a small imperforate ball of clear greenish glass (fig. 30), measuring $\frac{19}{32}$ inch in diameter and ornamented with discs of red and white opaque vitreous paste, six in number. It was found at the highest level. In the Monquhitter cairn² there were found two small balls of green glass about the size of small marbles, measuring in diameter $\frac{1}{2}$ inch and $\frac{5}{8}$ inch respectively, ornamented with rows of



Fig. 30. Imperforate Ball of Glass. ($\frac{1}{2}$.)

spirals inlaid in white. From the Buston crannog, from which also came a fragment of Samian ware, there was recovered "a round object of the size of a small marble, made of vitreous paste, variegated with blue and white, and imperforate";³ and in the Mote of Mark, near Dalbeattie, there was found a disc of glass inlaid with spots of opaque glass.⁴

Very few beads have been found thus far. A small bead of opaque yellow glass, discoid in shape, $\frac{11}{32}$ inch in diameter, came from the lowest level. Another of bright green opaque glass, also flattened on both ends and measuring $\frac{7}{32}$ inch in diameter, was found on the upper level. A tiny glass bead of lavender blue colour, only $\frac{3}{32}$ inch in diameter, was found on the second level; and a small double or segmented bead of blue glass, $\frac{5}{32}$ inch in length, was picked up on the surface. The lowest level yielded in addition a fragment of a large bead of amber.

III. FRAGMENTS OF GLASS VESSELS.

A number of additional objects of glass are portions of glass vessels, presumably Roman. They are small fragments, too small to afford

¹ *Proceedings*, vol. xxxvi. p. 679, fig. 6.

² *Proceedings*, vol. xxxvi. p. 678, figs. 4 and 5.

³ *Ancient Scottish Lake Dwellings*, p. 233.

⁴ *Proceedings*, vol. xlviii. p. 156, fig. 17, No. 13.

any indication of the dimensions or shapes of the vessels to which they have belonged, except in regard to a number of pieces of rather thick transparent greenish glass which have clearly belonged to large square or cylindrical bottles with reeded handles, such as supply fairly plentiful remains on Roman sites. The other fragments show that there were a number of delicately tinted fragile vessels in use during the various periods of occupation, in shades of green, yellow, amber, and blue. One or two pieces are ornamented with zones of finely scratched lines, and one amber-tinted fragment shows an opaque spot of darker colour forming a swelling on the glass. A small triangular fragment which came from the lowest level is an example of Roman painted glass. A band of pale blue runs along the upper edge, while beneath it in short parallel lines extends a group of narrow bands of alternating light orange and dull red. One other piece of glass which came from the lowest level is very puzzling. It is a small segment of the side and bottom of a vase, or bottle, the sides of which have curved rapidly inwards from the bottom. The body of the glass is as bright as crystal, and it is "flashed" or stained on the outer surface with a brilliant ruby colour. The absolute colourlessness of the body causes one to regard the antiquity of this relic with great suspicion, as much as does its ruby-tinted exterior. Especially is this the case since it is authoritatively stated¹ that a transparent red was one of the colours which the Romans were never able to obtain. The invention of ruby glass such as this, is attributed to Johann Kunckel at Potsdam in 1679.² How, if this fragment is really modern, it should have found its way not only half way up Traprain Law, but also down through some 2 or 3 feet of soil, is a mystery.

IV. HARNESS MOUNTINGS.

It is assuredly evidence of the extent to which wheeled vehicles were in use among the native population at the period of the occupation of this site that we should have found, all on the lowest and second levels, no less than five terret rings of bronze for reins, three of which are illustrated (fig. 31, Nos. 1 and 2, fig. 32, No. 1). It is probable that they were used in pairs. One pair from the lowest level appear to have been identical. The others, fig. 31, Nos. 1 and 2, from the second level, and fig. 32, No. 1, from the lowest level, are all slightly different, though the general fashion of the whole five is the same. Fig. 31, No. 2 has an extra boss at the apex, and fig. 31, No. 1 has a double flange at the base, where the terret was presumably inserted into the leather on

¹ Edward Dillon, *Glass*, p. 52.

² *Ibid.*, p. 290.

the pad; fig. 32, No. 1 is small, measuring only $1\frac{3}{8}$ by 1 inch in interior diameter.

Such objects are not infrequently discovered on Celtic sites. The hoard of late Celtic harness mountings from Middlebie in Annandale, preserved in the National Collection, contains five, two of them ornamented with three spherical bosses each, in the same manner as those from Traprain, while a third has four truncated bosses, two of which are near together at the apex though not touching, as in fig. 31, No. 2. The remaining pair are plain. One example was found at Newstead,¹ but in place of bosses it is ornamented with lip ornaments.

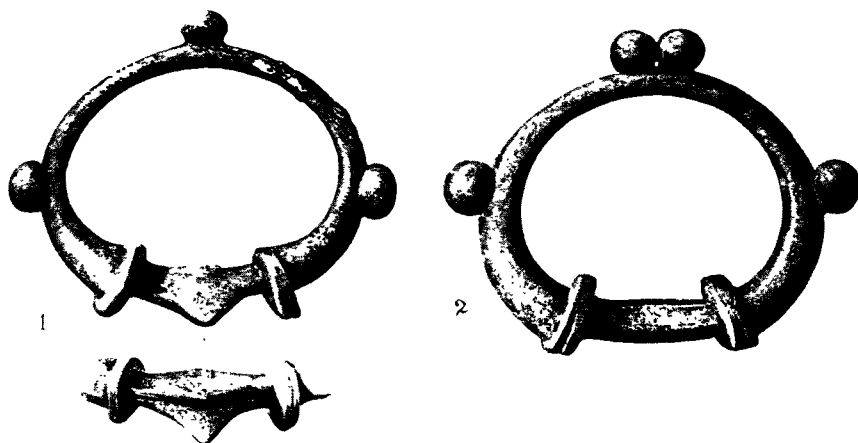


Fig. 31. Terrets of Bronze. ($\frac{1}{2}$.)

as also are the terrets in the rich hoard of Celtic horse trappings found at Stanwick in Yorkshire, and now in the British Museum.

A coin of Trajan found on the second level adjacent to the terret shown in fig. 31, No. 1 gives the form a second-century attribution.

Fig. 32, No. 6, shows an object formed of three fixed rings in alignment, also a horse trapping and apparently a simpler and less ornate variety of two pieces of the Middlebie hoard, in which the rings were oval and crossed each with a small ornamental bar. Several broken rings appear to have belonged to other articles of the same kind.

Fig. 32, No. 2, a quatrefoil of bronze with a boss in the centre and a square loop at the back for the attachment of a strap, is evidently a variety of an object found at Newstead² and elsewhere, in which each leaf of the quatrefoil bears a circular boss in the centre. A slight ridge appears in place of these bosses on each leaf of the Traprain example.

¹ *A Roman Frontier Post*, pl. lxxv. fig. 2.

² *Ibid.*, p. 302, pl. lxxv. fig. 3.

Its find-spot on the lowest level does not indicate that it belongs to a later period than the Newstead specimen.

The small six-petalled rosette of bronze shown in fig. 32, No. 4 is a

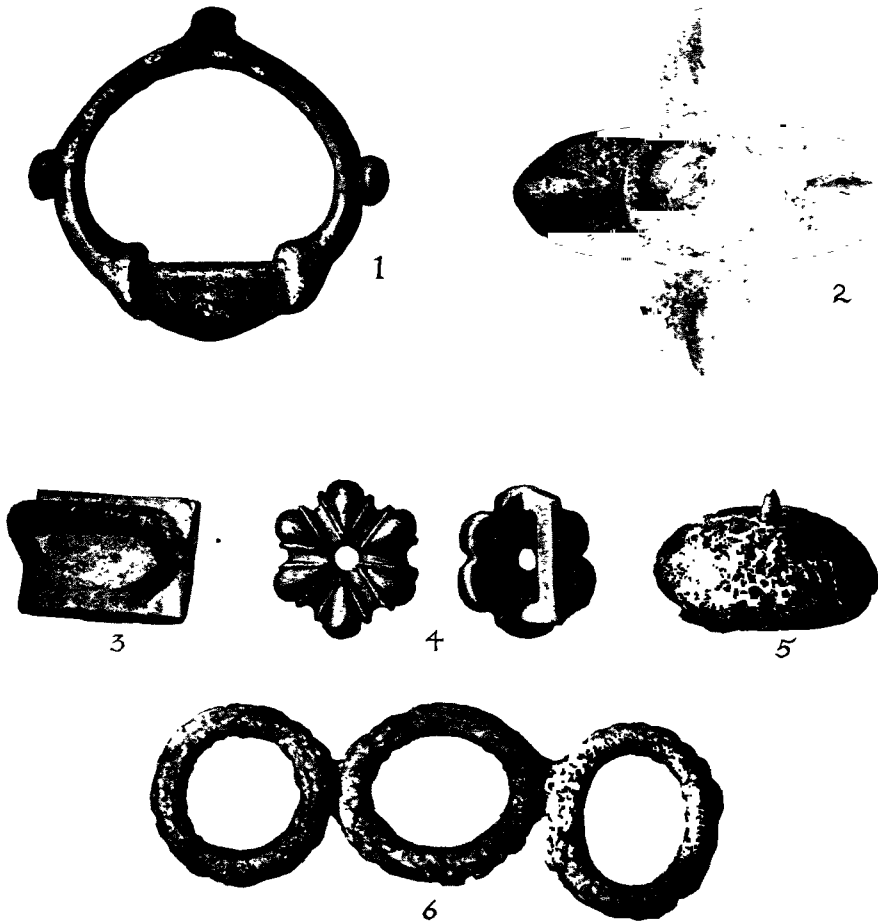


Fig. 32. Harness Mountings of Bronze. (1.)

beautiful piece of workmanship, and came from the level 1A, just above the lowest. It is perforated in the centre, while deep grooves, such as might be intended to hold a thread or light cord, separate the petals.

Another object of bronze (fig. 32, No. 3) from the lowest level is probably also a harness mounting; it is an oblong plate with a rectangular loop at the back suggestive of the dee on a modern saddle.

The large hemispherical stud, fig. 32, No. 5, with a point projecting from the centre, was perhaps also used to ornament harness. It likewise came from the lowest level and from the same area as most of the other harness mountings.

V. WEAPONS.

The only weapons which, so far, have been found are several iron spear-heads, a blade of the same metal which appears to be that of a dagger (fig. 33, Nos. 1-5), and a portion of the blade of a Bronze Age dagger. The spears are of two types—broad leaf-shaped, with closed sockets, as shown in Nos. 1, 2, and 4; and narrow, with split sockets, as No. 3. The former came from the lowest and second levels and represent the native Celtic type; while the latter, found on and adjacent to the highest level, though in bad preservation, seem more to have resembled some of the Roman spear-heads from Newstead, or the later Saxon type. No. 1, measuring 8 inches in length, has a well-defined midrib running the length of the blade, seemingly a Bronze Age tradition, and a feature which frequently characterises the spear- and lance-heads of La Tène.¹ Only a fragment of one such spear-head was found at Newstead,² a surface-find and badly rusted. A corresponding example was found many years ago in the bed of the river Churn, near Cricklade, Wilts, with Roman coins dating from Agrippa to Carausius.³ No. 4, measuring $7\frac{3}{4}$ inches in length, shows a spear-head of similar form to the last, but flat and without the midrib. This is doubtless also a native weapon and may be compared with a spear-head found at Hod Hill, Dorsetshire, along with Roman coins, the latest of which was a denarius of Trajan.⁴ Like the Traprain spear-heads, the latter had also a closed socket. One of the type with split socket, of which two were found, is illustrated in No. 3. A second spear-head with a midrib (No. 2) was found, but imperfect and in bad preservation.

From the second level, and adjacent to the spear-head No. 4, came a long, flat, narrow blade (No. 5) $10\frac{1}{2}$ inches in length, which seems to have been either a dagger or a lance-head. At the butt end a projection appears to be part of a tang, as it is too thin for the neck which would have connected a socket with the blade. This fact weighs against the suggestion that the object has been a lance-head, but, on the other hand, though as a dagger it would have been a very serviceable weapon, it does not appear to conform to any recognised type. It is double-edged.

¹ Mumro, *Lake Dwellings of Europe*, p. 285. Dechelette, *Manuel d'Archéologie*, "Archéologie Celtique ou Protohistorique," p. 1146.

² *A Roman Frontier Post*, pl. xxxvii, fig. 10.

³ *Proceedings of the Society of Antiquaries*, Second Series, iii. p. 67.

⁴ Roach Smith, *Collectanea Antiqua*, vol. vi., pl. xi.

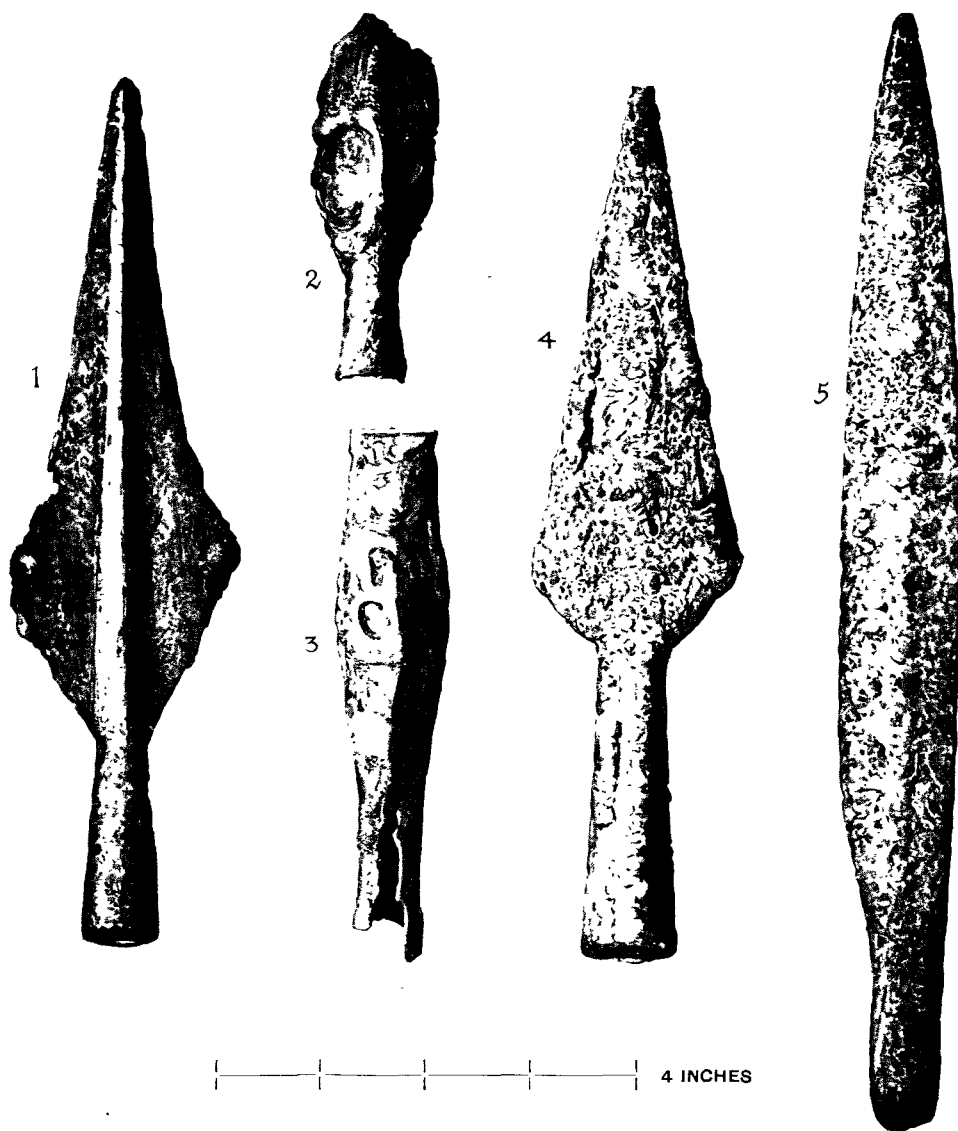


Fig. 33. Spear-heads and a Dagger Blade of Iron.

The portion of a Bronze Age dagger is the point end of a narrow double-edged blade, measuring $4\frac{5}{8}$ inches in length. Like the piece of a bronze penannular armlet, it came from the lowest level in Area B.

From the upper part of the second level came the iron relic illustrated as fig. 34, No. 2, which is evidently a sword chape of a recognised Celtic form; others similar but in bronze were found at Newstead.¹

The curved object of iron, perforated in the centre (fig. 34, No. 1), may also be a sword mounting, and possibly may have formed an upper guard on which a pommel rested; the perforation is too small for any other part of the tang than the end. Fig. 34, Nos. 3 and 4, represent

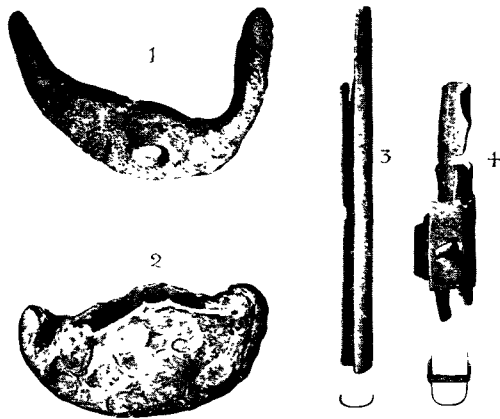


Fig. 34. Object of uncertain use, Sword Chape of Iron, and pieces of Bronze Binding. (3.)

portions of bronze binding, probably for sheaths, of which a number of pieces were found in different areas. Similar binding was found at Newstead.

VI. TOOLS AND IMPLEMENTS.

On the lowest level was found the iron axe-hammer, fig. 35. No. 6, also, like the spear-heads mentioned above, of a La Tène type,² and differing considerably from the Roman axes found at Newstead, which are larger and heavier and have the butt less pronouncedly fashioned as a hammer. Both the cutting edge and the hammer end have been subjected to much use, to judge by their appearance. An oblique perforation from the side of the butt to the socket shows that a nail has been used to fasten the head to the shaft.

The second level yielded a still more assured La Tène type of tool in

¹ *A Roman Frontier Post*, pl. xxxv. figs. 16-18.

² Cf. Déchelette, *Manuel d'Archéologie*, "Archéologie Celtique ou Protohistorique," p. 1358, fig. 594.

the shape of the small axe, fig. 35, No. 3, which in place of a socket is furnished with two corresponding wings on one face only, suggesting, but in the latter respect differing from, the Bronze Age form. The type belongs to the La Tène third period, and, though I know of no specimen



Fig. 35. Tools and Implements of Iron.

previously found in Scotland, examples do not appear to be so uncommon on the Continent.¹

Fig. 35, No. 4 shows an article from the second level, probably a pair of pincers used to hold some small delicate object in the process of

¹ Déchelette (*op. cit.*, p. 1359) illustrates several varieties, of which fig. 595, 2, from Gurina (Carinthia), in form most closely resembles that from Traprain, though in size it is much larger.

manufacture. When found, one leg showed a recent fracture, and a careful search in the vicinity shortly afterwards secured the pointed end shown in the illustration as completing the leg. I am not *absolutely* certain that it is the missing portion, as the metal has been so much corroded at the point of fracture that it is difficult to fit the two parts together satisfactorily, but I incline to the belief that it is. From the sharpness of this point and the slightness of the implement it was at first conjectured that the object was a pair of compasses, but on further consideration the conclusion was reached that such an ornamental head would not be suitable in compasses, and no analogy for such a head could be found. No more, however, have I found any similar pair of pincers. The article shown as fig. 35, No. 1 is one leg of a pair of shears of a well-known type.

Fig. 35, No. 2 shows an iron tool $5\frac{3}{16}$ inches in length, square in section and curving to a point, possibly a burnisher such as is used by silversmiths at the present day. Fig. 35, No. 5 appears also to be a tool, $6\frac{1}{2}$ inches in extreme length, in section square and with a rather heavy tang. The end is perfectly blunt and looks as if the object could only have been used as a large punch. I can find no similar tool recorded. There were found the remains of such another, rather shorter and much corroded.

Three knives (fig. 36) have been found all with blades of the same shape—broad and symmetrically pointed. One of them, No. 1, is supplied with a handle of bronze divided into two longitudinal quasi-cylindrical sections; a double sharp-edged moulding separates the two sections, and a cord moulding forms a border on either edge. In the base of the handle two sockets show that a finial has been affixed with pins. The blade is distinctly spatulate in form and at once suggests a flaying knife; originally it may have had a pointed termination similar to the two other specimens. In the rust and corrosion which cover it are impressions of the straw in which it must have lain when it became rusted and which probably covered the floor of a dwelling. It was found on the second level of Area B immediately adjacent to the large rectangular hearth. The two other examples, Nos. 2 and 3, have handles of iron, continuations of the blade, and neither gives any indication, such as rivet holes would afford, that they were covered by sheathings of bone or wood to facilitate the grip. All three knives have a distinct family resemblance. Their respective lengths are: No. 1, $6\frac{1}{16}$ inches; No. 2, $5\frac{1}{16}$ inches; No. 3, $5\frac{3}{16}$ inches. No. 2 also came from the second level; the find-spot of No. 3 was not recorded. The type does not appear to be common, the usual knife of the period having a curving edge, a blade narrow and rising to a point on the back. A knife of approximately

similar form, though larger, was found in the Gallo-Roman cemeteries of Vermand¹ of a date not earlier than the third century. The shape of the blade is the same, the handle, however, is of bone and circular in section, but is ornamented, in a fashion resembling the bronze handle of the Traprain knife, with incised lines running longitudinally down

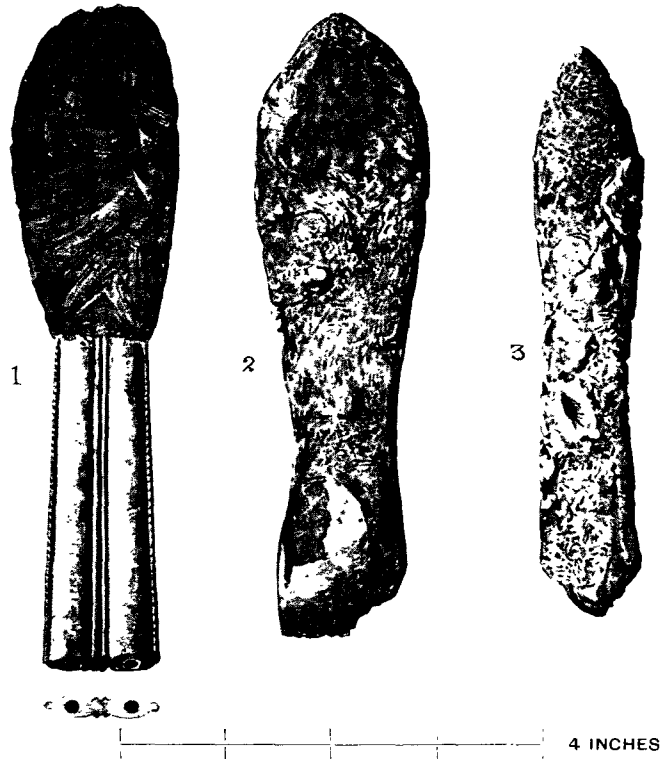


Fig. 36. Knives of Iron—No. 1 with a Bronze Handle.

the centre. Knives of the same form are illustrated in the catalogue of the Niessen Collection of Roman Antiquities at Cologne.²

Another relic (fig. 37, No. 1) is a lancet of bronze. It is a delicate object, too light for a razor; it still has a fine edge and is covered with a beautiful green patina. The tang shows that originally it has been furnished with a handle. It is from the lowest level.

The object which fig. 37, No. 2 illustrates has been formed from a strip of iron twisted spirally to form a socket, and so as to leave a point projecting. A similar article was found at Newstead and is here

¹ Theophil Eck, *Les deux cimetières Gallo-Romains de Vermand*, pl. xii. No. 15, p. 196.

² Niessen, *Beschreibung Römischer Altertümer*, vol. i. p. 229, vol. ii. Taf. cxxx.

illustrated (fig. 37, No. 3) for the first time for comparison. Though no other examples appear to have been recorded from Scotland, they are not uncommon on late Celtic sites, and General Pitt-Rivers, who suggested that they were ox-goads, records the finding of several at Woodcuts, Rotherley, and Woodyates,¹ no less than six having been found at the last-mentioned place. One was discovered in the recent excavation of Casterley Camp, Wilts,² by Mr and Mrs B. H. Cunnington. Nor are they unknown on the Continent. One is illustrated among

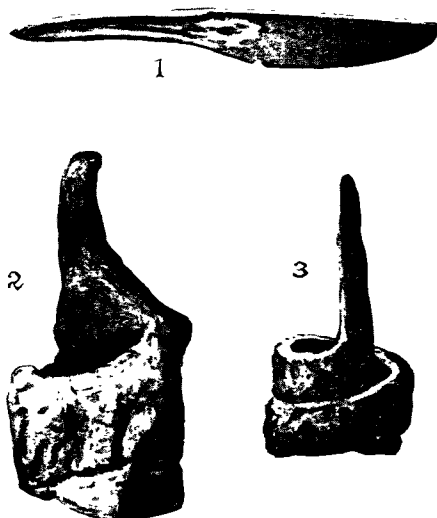


Fig. 37. Lanceet of Bronze and Ox-goads (') of Iron. ($\frac{1}{2}$.)

the relics from Kastel Faimingen³ on the German Limes, and is merely described as a ferrule, while Lindenschmit⁴ illustrates similar objects from the Rhine and elsewhere, designating them as arrow-points.

Fig. 39, Nos. 7 and 8 are sharpening stones of sandstone, each $3\frac{3}{4}$ inches in length. One is neatly bevelled at both ends, and the other, which is perforated, is rounded to a suboval form. A portion of another sharpening stone with the end bevelled was also found, as well as the larger half of a heavier whetstone, oblong in section and perforated at one end.

¹ *Excavations in Cranborne Chase*, vol. i., pl. xxix. fig. 10; vol. ii., pl. cv. fig. 10; vol. iii., pl. clxxxiii. figs. 17-19.

² *Wiltshire Archaeological and Natural History Magazine*, vol. xxxviii., pl. ix. fig. 10.

³ *Der Obergermanisch-Raetische Limes, Nr. 56c, Kastell Faimingen*, Taf. ix. fig. 9.

⁴ *Die Alterthümer unserer heidnischen Vorzeit*, vol. iv., Heft viii., Taf. 4.

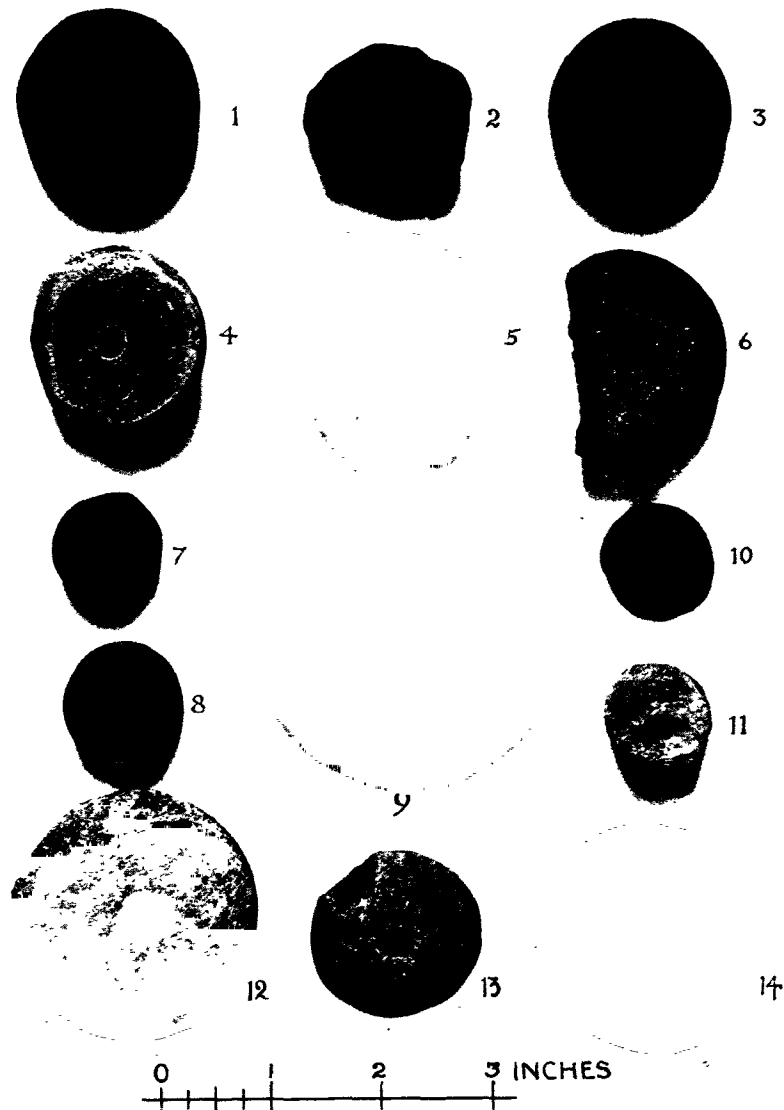


Fig. 38. Whorls and Discs of Stone.

VII. WHORLS AND DISCS OF STONE.

Connected with the industry of the women of the place are whorls to weight the spindle in the spinning of thread; of these there are fourteen, several of which are illustrated in fig. 38. Nos. 12-14 are of baked clay and came from the lowest level. No. 11 is one of two of identical size formed of lead, one of which came from the second and the other from the upper level. No. 4 is fashioned from the base of a Samian ware vase, and was found on the second level. No. 6 shows a fractured specimen, the perforation of which, started from both sides, has never been completed. It came from the second level. A disc of sandstone, a perfect circle and highly polished, is shown in fig. 38, No. 9. Slight ridges near the centre indicate where it has been used as a polisher. Similar thin highly-polished discs were found by Sir Francis Tress Barry in the Skirsa broch and the Road broch at Keiss, and are now in the National Collection.

Fig. 38, Nos. 7 and 8 are small circular discs of sandstone 1 inch and $1\frac{1}{8}$ inches in diameter, probably playing men for some such game as draughts, and resembling in size the numerous discs of coloured glass which were found at Newstead. Fig. 38, No. 10 is a thinner disc of similar size and probably used for the same purpose. The disc, fig. 38, No. 5, with a diameter of $1\frac{3}{4}$ inches, is of nearly double the diameter and thickness of the foregoing; its purpose is not obvious, though it may have been a whorl in the initiatory stage of manufacture.

VIII. OBJECTS OF FLINT.

Three scrapers of flint, two of which (fig. 39, Nos. 1 and 3) are illustrated, were found, and several large flakes which, from the nature of the chipping on their edges, had evidently been used as strike-a-lights, a purpose for which flint was in demand in protohistoric times.

IX. MOULDS AND CRUCIBLES.

A number of moulds for casting objects of bronze were recovered, fashioned of baked clay and of stone. The former were all imperfect. They seem for the most part to have been for pins; fig. 39, Nos. 4 and 6 have been for pins of the hand type; and fig. 39, No. 2, which is very incomplete, seems to have been for a pin like fig. 25, No. 3. Fig. 39, No. 5 has been for some circular ornament, possibly a flat ring. In all there were found twelve pieces of such moulds. With one exception (fig. 39, No. 6), which came from the upper level, they came either from the lowest or second level.

The other moulds, all cut out of sandstone, are six in number.

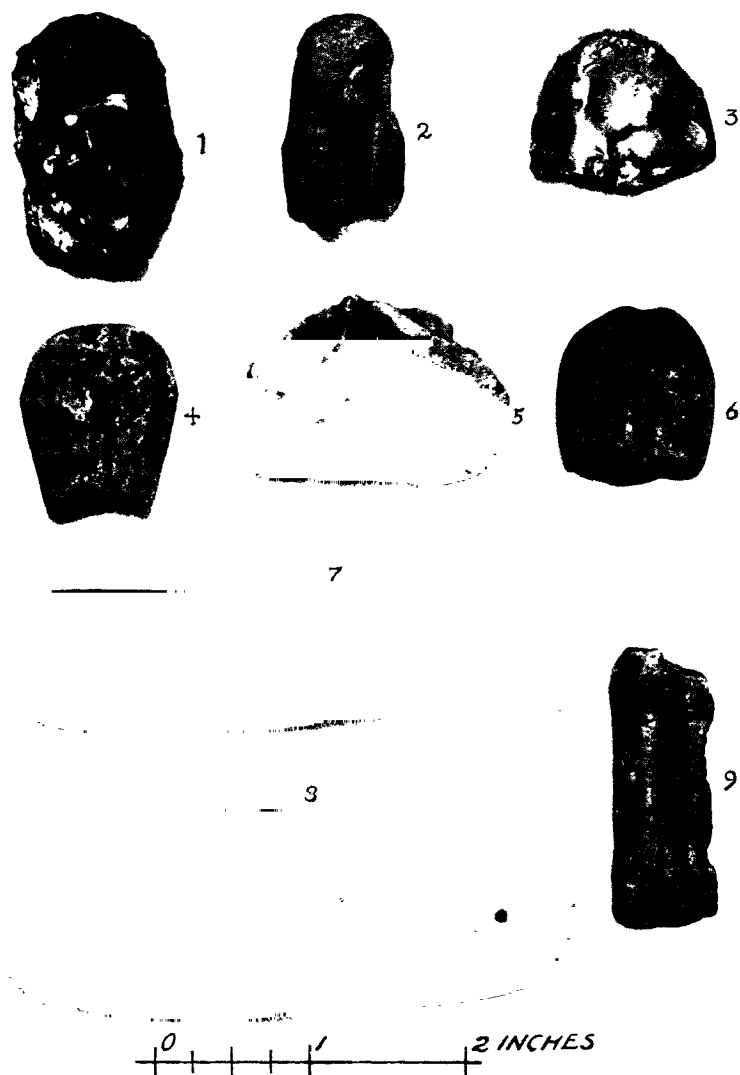


Fig. 39. Flint Scrapers, Portions of Clay Moulds, and Sharpening Stones.

there being in one case two on one block, on the upper and under surface respectively. Not one of the stones came from the lowest level, but two from the upper and three from the second level. Three of the moulds (fig. 40, Nos. 2, 4, and 5) are for casting narrow bars or

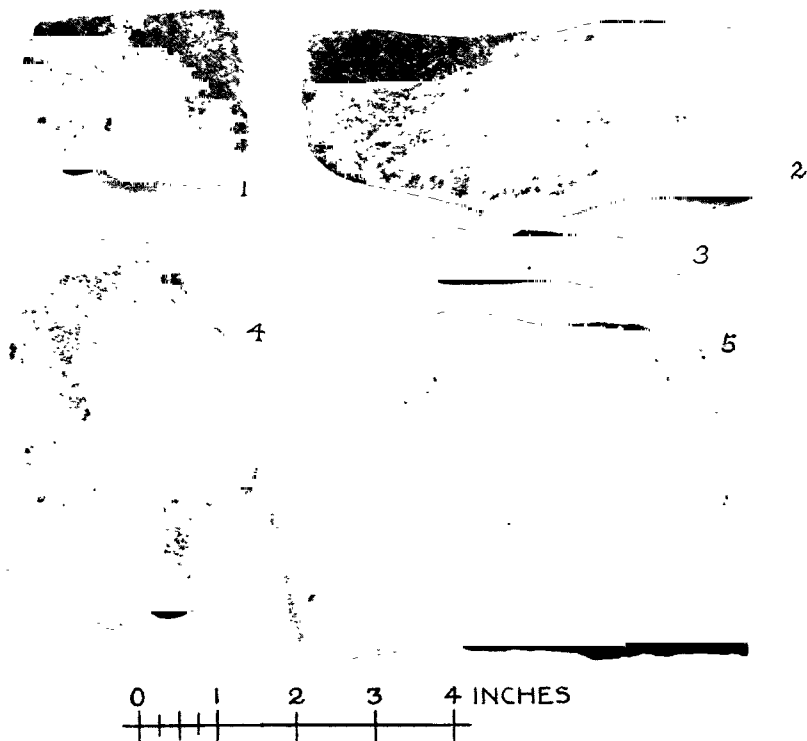


Fig. 40. Moulds of Stone and rough Casting of Bronze.

ingots of bronze, measuring respectively $3\frac{1}{4}$ inches, $3\frac{1}{2}$ inches, and $3\frac{11}{16}$ inches in length. Similar moulds have been found on a number of sites. Several were found in the Society's excavation at Dunadd,¹ others in the Broch of Harray in Orkney, in the Lochlee crannog (an object from the last named, illustrated as a "hone,"² being obviously a mould), and other sources. An object (fig. 40, No. 3) illustrated immediately below No. 2, is a rough casting of bronze which presents a resemblance so close in size and shape to the matrix of the mould

¹ *Proceedings*, vol. xxxix. p. 292.

² Munro, *Ancient Scottish Lake Dwellings*, p. 105, fig. 54.

shown above it as to warrant a conjecture that it actually came out of it. The fact that the ingot came from the lowest level and the mould from the second does not necessarily destroy such a presumption, for there is nothing improbable in such a mould of stone surviving over a number of years.

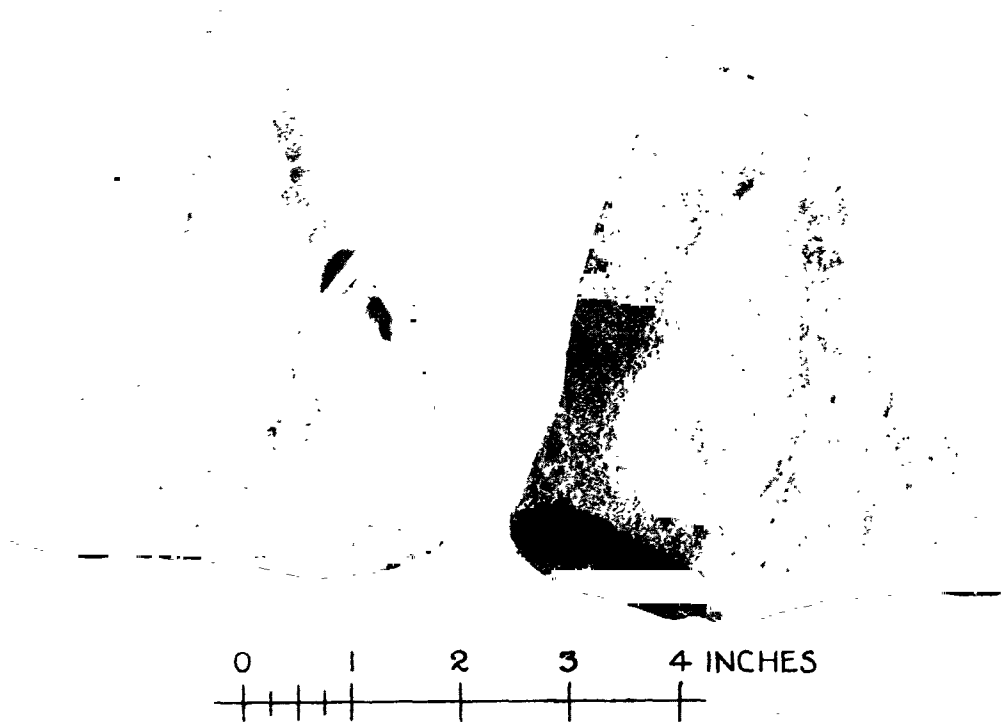


Fig. 41. Two Moulds on same Stone.

Two moulds which appear upon the one stone (fig. 41) are of more interest than the foregoing, as their purpose is less obvious. One is for a harp-shaped block of metal $3\frac{1}{4}$ inches in length by $1\frac{3}{4}$ inch at greatest breadth by $\frac{3}{8}$ inch in depth. It suggests the outline of a large fibula, but it seems hardly probable, when we find clay moulds for pins, that a nearer approximation to the form of a fibula could not have been obtained previous to the application of the graving tool. This mould came from the uppermost level. The second object to be

cast from the matrix on the opposite surface of the stone is equally inexplicable. It has been $3\frac{7}{16}$ inches in length, $\frac{3}{8}$ inch in breadth at

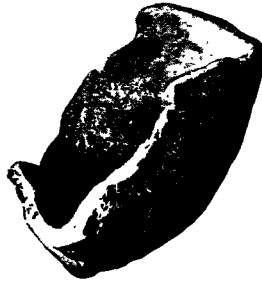


Fig. 42. Half of a Crucible. ($\frac{2}{3}$.)

the one end, expanding to $1\frac{3}{16}$ inch at the other, which is oblique, and it curves slightly in the direction of its length. The remaining mould (fig. 40, No. 1), from the second level, was for a disc $\frac{1}{16}$ inch in diameter and $\frac{3}{16}$ inch in thickness.

A number of fragments of crucibles were found all of the same class, cup-shaped with an ovoid base, formed from fireclay. The largest portion of one of these vessels is illustrated in fig. 42.

X. MISCELLANEOUS OBJECTS.

Another relic of stone, fig. 43, is an oval pebble, $3\frac{1}{16}$ inches in length by $3\frac{3}{8}$ inches in breadth, which has been hollowed out to serve as a

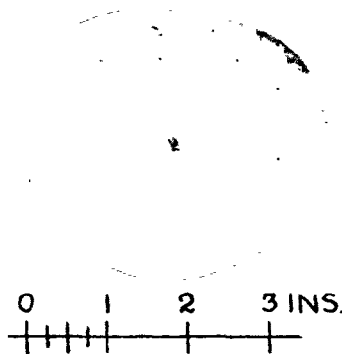


Fig. 43. Stone Lamp.

lamp. The hollow is still stained black by the fat, or oil, which was consumed in it. Such lamps are not uncommon on Iron Age sites.

An almost identical specimen came from the Keiss broch in Caithness excavated by Sir Francis Tress Barry.

Two small balls of stone, $\frac{1.5}{16}$ inch and $1\frac{1}{4}$ inch in diameter, were found, objects presumably used as sling stones; and a pellet of baked clay, $\frac{1.1}{16}$ inch in diameter, was possibly used for the same purpose.

Objects of bone were rare. Fig. 44, No. 3, decorated with vertical rows of incised chevrons, is probably the end of a handle. Fig. 44, No. 2 is one of a pair of exactly similar objects of unknown use, each terminating in a blunt point and broken through at a perforation; it is possible they may have been employed as dress fasteners. Both came from the lowest level. There were found also two portions of cylindrical objects of bone, $\frac{3}{4}$ inch in length, and the more complete (fig. 44, No. 5) $\frac{1}{2}$ inch in greatest diameter. These may have been worn as beads. Such ornaments have on several occasions been found, both in this country and south of the Borders, associated with Bronze Age interments.¹ These fragments came from the lowest level.

Among the miscellaneous relics are several objects of iron and of bronze that must be noticed. One of the most remarkable of the finds is an object of iron (fig. 44, No. 1), $3\frac{3}{4}$ inches in length, resembling a well-executed model of a deer's horn with three points. If it has not been intended to represent such an object it is difficult to conceive what it has been meant to represent. It came from the second level. On the same level, and not far from the large rectangular hearth of Area B, was found the handle of the Roman patella shown in fig. 44, No. 6. It is covered with a beautiful patina and has been ornamented with a diaper pattern in incised lines.

Fig. 44, No. 7 illustrates a curious little object of bronze which closely resembles a human leg and foot. It is tempting to imagine that we have here a foot-amulet such as was common in Europe in Early Iron Age times,² but I think that such an assumption would be rash. The bronze is much decayed, and owing to this cause the form it has assumed may be in part fortuitous. On one side also there is a small cup-like depression, the purpose of which is not obvious.

Fig. 44, No. 4 shows a small portion of a mounting of thin bronze ornamented along each edge with a row of repoussé dots; while fig. 44, Nos. 12 to 15 illustrate four out of five fragments of a mounting of bronze ornamented with moulded lines; three of the pieces still retain studs for attachment. The largest piece is fashioned on a curve both longitudinal and lateral. Fig. 44, No. 9 is another and heavier piece of a

¹ *Proceedings*, vol. xlii. p. 212.

² See Dechelette, *op. cit.*, p. 1306.

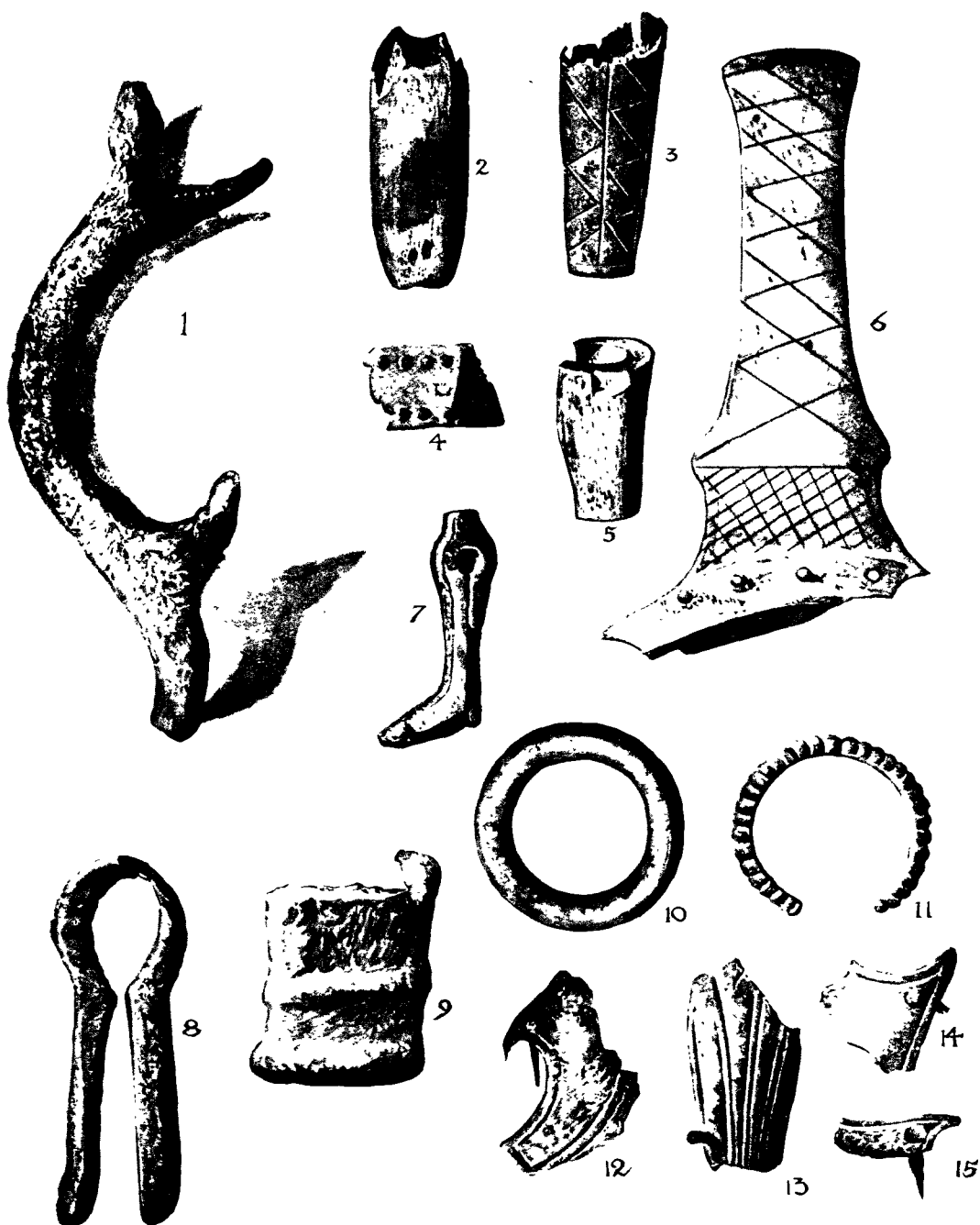


Fig. 44. Miscellaneous Objects of Bone, Bronze, and Iron. († except No. 6, which is $\frac{2}{3}$.)

mounting or finial of some sort which appears to have been in the form of a sheath. All these fragments came from the lowest level.

A ring of bronze, imperfect, $\frac{1\frac{1}{2}}{16}$ inch in interior diameter, segmented on the upper surface and bevelled beneath, is shown in fig. 44, No. 11, and came from the level, only occasionally evident, immediately above the bottom and designated 1A. Fig. 44, No. 10 is a solid ring of bronze from the lowest level.

Fig. 45, No. 9 shows a half horse-shoe which came from the highest level. It has no calkin, and may be compared with a portion of a horse-shoe found by General Pitt-Rivers along with coins of the third and fourth centuries in the ditch of Wor Barron, Handley Down.¹

A considerable number of iron nails were found, of which the best preserved examples are shown in fig. 46; in addition there were found two objects known as split pins, one of which is illustrated by fig. 44, No. 8. A long nail (fig. 45, No. 20), shouldered, slightly curved, and furnished with a flat transverse head, came from the bottom level; it measures 6 inches in length.

Other objects of iron include a hook (fig. 45, No. 22), $4\frac{1}{2}$ inches in length. Similar objects were found at Newstead and at Woodcuts;² a quadrangular ring of iron (fig. 45, No. 16) resembling the loop of a buckle; a bar of iron (fig. 45, No. 19), $9\frac{5}{8}$ inches long, slightly curved in the direction of its length, forming a square of $\frac{3}{4}$ inch in section, worked to a blunt rounded point at one end and checked at the other to the depth of half its thickness for a length of nearly half an inch, found adjacent to the long hearth on the second level of Area C; a thin plate of iron (fig. 45, No. 2), $2\frac{9}{16}$ inches in length, forming a right angle, pointed at one end and probably a portion of hasp; a washer of iron (fig. 45, No. 15), $1\frac{3}{16}$ inch in diameter, with a square perforation in the centre; an object of iron of indeterminate use (fig. 45, No. 13), slightly imperfect at one end, $2\frac{1}{8}$ inches in length, forming an ogee curve in outline; part of the blade of a knife (fig. 45, No. 1) symmetrically pointed, $2\frac{7}{8}$ inches in length by $\frac{1}{16}$ inch in breadth; a tool of iron (fig. 45, No. 18), $5\frac{7}{16}$ inches in length, a square of $\frac{3}{8}$ inch in section, and slightly tapering to one end; another tool-like flat object of iron (fig. 45, No. 17), $5\frac{1}{2}$ inches in length, $\frac{3}{8}$ inch in breadth, $\frac{1}{8}$ inch in thickness, rounded at one end; a small iron punch (fig. 45, No. 3) $2\frac{1}{16}$ inches in length; a hook of iron (fig. 45, No. 8), $\frac{11}{16}$ inch in length; several iron tangs for tools or implements (fig. 45, Nos. 4, 5, 11, and 12), varying in length from $1\frac{9}{16}$ to $2\frac{1}{2}$ inches; a bolt with a head hammered on at either end (fig. 45, No. 21), $2\frac{3}{8}$ inches in length; the remains of an

¹ Pitt-Rivers, *op. cit.*, vol. iv, pl. 258, fig. 24.

² *Ibid.*, vol. i, p. 86, pl. xxviii, fig. 20.



Fig. 45. Miscellaneous Objects of Iron.

iron key, which has had a fixed ring at the end of the shank (fig. 45, No. 7), $4\frac{5}{8}$ inches in length. Fig. 45, No. 6 is an indeterminate object of iron, $3\frac{9}{16}$ inches in length, pointed at one end and with a straight edge at

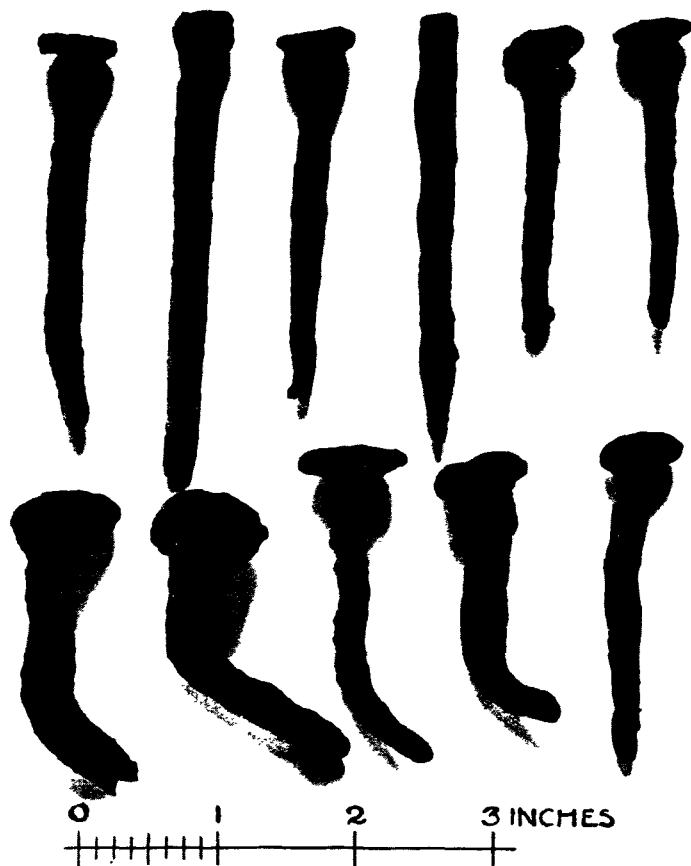


Fig. 46. Iron Nails.

the other. It has a very rude appearance and may possibly be a tool in an incomplete state.

In addition to the foregoing objects of metal there was found a portion, amounting to about one-half, of a perforated ball of baked clay, flattened at the two opposing poles and measuring in diameter $2\frac{1}{8}$ inches by $3\frac{9}{16}$ inches. Objects somewhat similar, believed to be loom weights, were found near Mountblair, Banffshire, and Ravensly,

Forfarshire, many years ago¹ and are now in the National Collection; and another was found in Kastell Zugmantel on the German Limes.²

The last of the miscellaneous relics that I need mention is, I am given to understand, a coprolite of the excrement of a large fish, probably a skate. It is a flattened sphere, $1\frac{9}{16}$ inch in diameter, with a surface white and slightly polished, marked with numerous black horizontal striæ in which appear small gritty particles.

XI. COINS.

Not the least important of the relics are the coins, for the identification of which I am indebted to Dr George Macdonald. These are certainly three in number, while a small disc of bronze may be a fourth completely effaced. From the lowest level of all, from among a number of large stones which were probably the foundations of a hut, came a denarius of Hadrian (A.D. 117-138). One of the small hearths which on Area B marked the level 1B, a few inches below that of the second occupation, yielded a denarius of Antoninus Pius (A.D. 138-161), while from the second level came a second brass of Trajan (A.D. 98-117). The small disc referred to above was found on the highest level; it is not a styca—for that it is too thick; possibly it has been a Roman minim.

What deductions may we draw from the foregoing? We have here a prominent hill eminently suited by its defensible natural features, its moderate height, and grass-covered slopes for the occupation of a large community in early times, when protection was required not only for the people themselves against enemies human and bestial, but also for their flocks and herds. We have seen evidence of two distinct schemes of defence of this site, one, with its almost obliterated ramparts, presumably much earlier than the other; each enclosing an enceinte nearly half a mile in length, but the later seemingly comprehending a broader superficial area. Our excavation, which relatively to the whole extent of the enceinte covers an insignificant plot, lies outside what we have presumed to be one of the ramparts of the older enclave and well within the later additional enclosure on the south-western slope. Five levels of occupation on this plot have been disclosed. The earliest of these, from the large proportion of the whole relics which it has yielded, was evidently the most important, at least in duration. Two relics of bronze—the dagger-point and the portion of a penannular armlet, in company with two or three flint scrapers—might indicate the terminus *a quo* in the Bronze Age; but the general facies of the pottery, and of the numerous other relics referable to an Iron

¹ *Proceedings*, vols. iii. and ix. pp. 68 and 176.

² *Der Obergermanisch-Raetische Limes*, Nr. 8, *Kastell Zugmantel*, Tafel xvii., fig. 45.

Age horizon, point to these Bronze Age deposits being merely fortuitous. The native pottery, in the present stage of our knowledge, is not illuminating further than that it is of Iron Age character as found in southern Scotland. Its marked predominance in the lowest level, and the soil immediately overlying it, leaves no doubt as to the native character of that occupation. Of the *terra sigillata* which it has yielded almost all the fragments have a possible first-century date, and an early date may be attributed to some of the sherds of other Roman wares the periods of manufacture of which are less accurately known. The fibulæ, pins, clasps, and other objects from this level are such as have been found on Roman or Romano-British sites, the occupation of which has occurred at the end of the first and in the second century. One coin from this level, identified as a denarius of Hadrian, proves at least that the site was not abandoned before A.D. 117, the year of the commencement of his reign.

The houses, if one may hazard an opinion on very slight evidence, appear to have been roughly circular, with walls of wattle and daub, and the presence of nails implies a certain amount of squared woodwork.

There is nothing to guide us as to the date of level 1A; it only made itself apparent to a slight extent, and evidently followed quickly on the termination of the primary occupation. From the level above, however, 1B, which lay but a few inches beneath the well-defined second level, the denarius of Antoninus Pius carries us well into the second century and determines the earliest possible date as probably not before A.D. 140. The fragments of *terra sigillata* from the second level, as well as those of the other Roman wares, have a distinct second-century facies, and clearly refer the occupation of that level to the Antonine period between A.D. 140 and 180.

A remarkable lack of relics characterises the uppermost level of all, but the third to fourth century date attributed to the few fragments of Roman pottery recovered opens a vista of further suggestive discoveries. I may add that so far no site of a Roman fort is known in this region nearer than Inveresk, which is some twenty miles distant.

The Society is much indebted to the Right Hon. A. J. Balfour, to whom the hill belongs, for permission to excavate, and also for the disposal in the National Museum of the relics found.

One word more remains to be said. The success which has attended our first summer's excavation must in large measure be attributed to the close personal supervision exercised by Mr James E. Cree, Mr J. G. A. Baird, and Mr Keith R. Murray, who each gave several weeks of almost daily attendance on the hill, as well as to the enthusiastic, vigilant, and intelligent manner in which Mr Pringle, our foreman, and his two assistants carried out the work entrusted to them.

III.

NOTICE OF A BRONZE CUP AND OTHER OBJECTS FOUND APPARENTLY IN A SEPULCHRAL DEPOSIT NEAR TARLAND, ABERDEENSHIRE. BY J. GRAHAM CALLANDER, SECRETARY.

The discovery of a small hoard of relics belonging to the early Iron Age, in 1898, in a sand-pit at Waulkmill, on the estate of Melgum, near Tarland, is recorded in our *Proceedings*, vol. xxxix. p. 214. The hoard consisted of a small penannular brooch of silver, two discs of transparent blue glass, two discs of variegated vitreous paste of turquoise blue, dull red, and yellow colours, and seven flat, rounded pebbles of

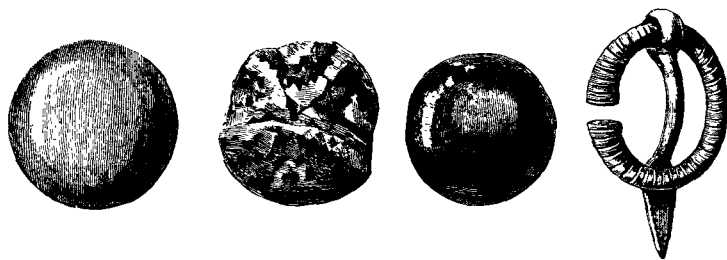


Fig. 1. Discs of quartzite, vitreous paste, and blue glass, and small penannular Brooch of silver found at Waulkmill. (J.)

reddish-brown quartzite, which are illustrated full size on fig. 1; besides these was a baluster-shaped object of clear glass, $1\frac{1}{8}$ inch long and $\frac{3}{4}$ inch in diameter. The record of the discovery states that a game-keeper digging in a sand-pit "came upon four undressed stones, each measuring about 2 feet broad and 18 inches high, placed one above another, at a depth of 4 feet from the surface," and that on further search he found, along with the objects just described, "two or three pieces of steel or wrought iron, apparently the remains of some weapons, as well as a number of small bones" which crumbled away when lifted. The relics were acquired by a policeman at Aboyne, but they were claimed and recovered by Mr J. A. Milne, proprietor of the estate of Melgum, who afterwards presented them to the National Museum. A year after the discovery a further find seems to have been made, as it was rumoured that "a number of silver articles were found in the same sand-pit," but these could not be traced.

Some years ago I called on a policeman in central Aberdeenshire to see a very good collection of prehistoric antiquities which he had gathered together, chiefly from the Buchan, Garioch, and Deeside

districts of Aberdeenshire. Amongst other things noted were a small cup of cast bronze, the crown of a human molar tooth found in the cup, a disc of translucent blue glass broken in two, and twelve pebbles of brown, grey, and whitish quartzite. The owner said that the glass disc was all that remained of a number of similar objects and other relics found in a sand-pit near Tarland, which were once in his possession but which he had been compelled to give up to the Laird; that he had kept the glass disc, it being broken, and that the cup, tooth, and pebbles had been found afterwards in the same sand-pit and he had secured them, their discovery having been kept secret.



Fig. 2. Cup of Bronze found near Tarland.

After the death of this man I bought the relics from his representatives, and they are exhibited to the Society to-night.

The cup (fig. 2), even with about one-third of the brim and part of the bowl broken off, is a beautiful example of the bronze-founder's art. Gracefully designed and decorated with effective though restrained ornamentation, it furnishes another example testifying to the skill, dexterity, and high state of excellence in craftsmanship and design attained by the metal-workers of this country about the beginning of this era. The vessel has a long, straight, everted brim springing from a slightly constricted neck, while the lower part is semi-globular. The external diameter of the mouth is $2\frac{1}{8}$ inches, of the neck $1\frac{3}{4}$ inch, and of the bulge $1\frac{5}{16}$ inch, and the height is $1\frac{9}{16}$ inch. Though a casting, the thickness of metal in the bowl is less than $\frac{1}{16}$ inch; but at the lip, which shows a rounded bevel to the outside, it increases to about $\frac{1}{8}$ inch in thickness. Encircling the neck is a transverse row of small studs less than $\frac{1}{16}$ inch apart, with sharp conical heads projecting about $\frac{1}{16}$ inch outside the wall of the cup. Extending from this row to the lip of the vessel there have apparently been three

groups of vertical rows of similar studs, but only one group composed of five rows and part of a second survive, the other portion of the second and the whole of the third group having been on the missing portion of the brim. Between the neck and shoulder of the cup, under the encircling row of studs, is a very delicate raised bead or moulding. The studs have been inserted into carefully drilled holes and are riveted on the inside. As the cup is a casting, and not formed of different plates of hammered bronze, it is evident that the studs are entirely ornamental and not structural. The cup shows several striking resemblances to three of the large globular cauldrons formed of beaten bronze plates riveted together which are preserved in the National Collection. The cauldron found in Carlingwark Loch, Kirkcudbrightshire¹ (which contained the fragments of a small bronze vessel and a Late Celtic bronze handle, as well as many objects of Roman ironwork), like the cup exhibited has a globular base and a long, straight brim, only it is not everted. The example from Kincardine Moss, Stirling,² has a single transverse row of round-headed rivets encircling the vessel at the bulge and two vertical groups of five rows each between it and the rim; these rivets, however, are structural as well as ornamental, as they join the different plates of which the vessel is formed. In the third vessel, found in the West of Scotland,³ there are three transverse rows of conical-headed studs at the junctions of the plates and numerous vertical single rows of round-headed punch-marks between the highest transverse row and the short everted brim. In this case the rivets and studs are both structural and ornamental. It may be noted that similar conical-headed rivets are seen in the fine Late Celtic helmet of bronze found in the Thames at Waterloo Bridge, London, and now preserved in the British Museum.

The glass disc is convex and smooth on the upper side and flat and rough below; it measures $\frac{1\frac{3}{8}}{16}$ inch in diameter and $\frac{1\frac{1}{2}}{16}$ inch in thickness. Similar objects are not uncommon on Roman sites, and they have been found in the Roman camps at Newstead,⁴ Birrens,⁵ and Camelon.⁶ These discs, as well as flat, round pebbles and discs of bone which have also been found on Roman sites, are believed to have been "men" or counters in some game perhaps resembling draughts.⁷ It may be noted that a board in the shape of a stone slab having

¹ *Proc. Soc. Antiq. Scot.*, vol. vii. p. 7.

² *Ibid.*, vol. xix. p. 313.

³ *Ibid.*, p. 314.

⁴ James Curle, *A Roman Frontier Post—Newstead*, p. 338.

⁵ *Proc. Soc. Antiq. Scot.*, vol. xxx. p. 192.

⁶ *Ibid.*, vol. xxxv. p. 397.

⁷ I have seen a disc of clear green bottle glass with an inlaid ladder-like design of coloured enamel, similar in size and shape to those described, which was found in the West Highlands. This ladder-like design is seen on a dark blue background in some of our Scottish beads, and consequently may give a hint as to the probable date of this type of bead.

fifty-six squares roughly incised on it was found in the Roman station at Corbridge in the North of England.

Of the twelve pebbles exhibited, only one resembles those first recovered from the sand-pit; it is slightly oval and of reddish-brown colour. The other examples may be ordinary "chuckie" stones deposited by water and not collected by man, but three of them are of an uncommon red or reddish-brown colour, and only a visit to the sand-pit could show if such pebbles are common to the locality.

Regarding the silver brooch found with the first batch of relics, it has its prototype elsewhere in Scotland. Small penannular brooches with the ring circular in section have been found on Roman and native sites, but this brooch has a ring oval in section and is provided with a peculiar bow-shaped pin flattened at the point. In many fibulæ and brooches the shape and arrangement of the pin assist in assigning a date to them, and possibly with such a characteristic pin as is seen on this example we may be justified in placing it in the same period as brooches similarly supplied though of different size. A penannular brooch having a ring of oval section and bow-shaped pin with flattened point, bearing Late Celtic enamelled decoration, and measuring 2 inches by $1\frac{1}{4}$ inch in diameter, was found at Newstead,¹ and was believed to date to the latter half of the second century A.D.; and a similar example, but without ornamentation, from the Culbin Sands, Morayshire, is preserved in our Museum.

There seems little doubt that the cup belongs to the same hoard as the brooch, discs of glass and vitreous paste, and flat pebbles. As bones were noted when the first lot of relics were discovered and a human molar tooth was found inside the cup, presumably the deposit was sepulchral. Few burials of the Early Iron Age have been recorded from Scotland, the only examples I know being the cist at Moredun, Gilmerton, Midlothian,² and the cairns at Gullane, East Lothian.³ In the former were the skeletal remains of two persons and a fibula of La Tène type, a circular brooch, and a ring-headed pin, all of iron; and in the latter were human remains, a bronze finger-ring, and an iron dagger or knife.

From the shape, and character of the ornament, of the cup it is evident that it belongs to the time when the large Scottish cauldrons were fashioned, that is the Late Celtic or Early Iron Age; and from the discovery of brooches and glass or vitreous paste discs on Roman sites in Scotland which were occupied chiefly during the second century of this era, similar in character to those from the sand-pit, it seems quite safe to assign the Tarland hoard to the early centuries of our era.

¹ James Curle, *A Roman Frontier Post—Newstead*, p. 327, pl. lxxxviii. fig. 7.

² *Proc. Soc. Antiq. Scot.*, vol. xxxviii. p. 427.

³ *Ibid.*, vol. xlii. p. 332.

MONDAY, 8th March 1915.

The HON. JOHN ABERCROMBY, LL.D., President,
in the Chair.

A Ballot having been taken, the following were duly elected Fellows:—

Captain ELLIOT M. S. MACKIRDY, M.A. Oxon., Lanarkshire Yeomanry,
Birkwood Castle, Lesmahagow, Lanarkshire.

ANDREW M'CORMICK, Town Clerk, Newton-Stewart, 66 Victoria Street,
Newton-Stewart.

JOHN Y. LOCKHART, 12 Victoria Gardens, Kirkcaldy.

JOHNSTONE CHRISTIE WRIGHT, F.R.S.E., Northfield, Colinton, Midlothian.

The following Donations were exhibited, and thanks voted to the Donors:—

- (1) By The Right Hon. THE EARL OF ROSEBERY, K.G., K.T., LL.D.,
F.S.A. Scot.

Eleven Beads of Glass and a portion of the hollow rim of a Roman Glass Vessel which has been worn as a bead, found in a cist at Hound Point, Dalmeny. (See the subsequent communication by Professor Baldwin Brown.)

- (2) By COUNTESS VINCENT BAILLET DE LATOUR, F.S.A. Scot.

Collection of pieces of Pottery, Necklace of fifty-nine amber beads, and a collection of eight and one-half Glass Beads, all from the Broch of Dun-an-Iardhard, Skye. (See preceding communication by Mr F. T. Macleod.)

- (3) By Sir ALEXANDER R. SIMPSON, M.D., LL.D., F.S.A. Scot.

Two handled Cups of Steatite and a Whetstone of Quartzite, provenance unknown.

- (4) By THOMAS J. WESTROPP, M.A., the Author.

Promontory Forts and Early Remains of the Islands of Connacht.
Part I. Achill. Pamphlet.

(5) By HIS MAJESTY'S GOVERNMENT.

Calendar of State Papers. Venetian, 1626-1628. London, 1914. 8vo.

(6) By ROBERT M. LAWRENCE, Esq., 247 Union Street, Aberdeen.
the Author.

1. Rev. Dr Walter Macgilvray, Aberdeen. Aberdeen, 1914. Pamphlet.

2. A Century of Bookselling, 1814-1914: David Wyllie, afterwards
David Wyllie & Son. Aberdeen, 1914. Pamphlet.

(7) By DAVID MACRITCHIE, F.S.A.Scot., the Author.

1. The Crime of Harboursing Gypsies. Pamphlet.

2. Gaelic Speech and Gaelic Race. Inverness, 1914. Pamphlet.

PURCHASES.

1. *For the Museum.*

Bronze flat-headed Pin, $4\frac{1}{8}$ inches in length, from Berneray, Harris.



Fig. 1. Pin from Berneray. ($\frac{1}{2}$.)

2. *For the Library.*

An Old Highland Fencible Corps. By Captain Ian H. Mackay
Scobie, F.S.A.Scot. Edinburgh, 1914. 4to.

Report to the Board of Agriculture for Scotland on Home Industries
in the Highlands and Islands, 1914. Edinburgh, 1914. 8vo.

The following Communications were read:—

I.

SOME RECENT DISCOVERIES IN ST ANDREWS. BY D. HAY
FLEMING, LL.D., F.S.A.Scot.¹

Of the discoveries which I am now to bring under the notice of the Society, one was made last month and two last autumn. Several of the others were made so long ago as the summer of 1910, but it is well that they should be recorded in our *Proceedings*.

In one of their invaluable works, Messrs MacGibbon and Ross, describing St Andrews Cathedral, say:—

“There is a very puzzling feature in connection with this west front which has never been satisfactorily explained. On each side of the doorway there rises a vaulting shaft, a few feet higher than the level of the capitals of the doorway. A similar shaft will be observed at the angle of the west front and the south wall. Rising from these shafts are incomplete ragglets, indicating the form of vaults against the west façade. . . . that there was a western porch. But such a feature is quite . . . the design of the west end, for had there been such a porch, it would have cut the arcade above the doorway in two, which is a most unlikely idea. The vaulting shafts and arches springing from them are a part of the original design and construction. The arcade also seems at first sight to be so, hence the difficulty of reconciling these features with the existence of a western porch. The marks of the arch rise to the apex in the south aisle, and the arch head might have been completed without interfering with the arcade. Over the central door the marks of the arch are carried up only as far as the string course beneath the first arcade. This fact, together with the later character of the upper part of the building, would seem to indicate that there has been a change in the design, and that the original intention of having a wide porch extending along the whole of the west end has been departed from after the first story was built up to the level of the above string course, all above that point being of later design and execution. The style of the architecture confirms this view. . . . The lower story of the west end, which is in the First Pointed style, would thus appear to be all that remains of the façade erected by Bishop Wishart; while the upper portion above the first string course was rebuilt at a later date.”²

This puzzle was solved in June 1910, when the west front was being pointed. It was then discovered that the wall-passage, which appeared to have run behind the blind arcade, had not been filled up with stone and lime as had been usually supposed, but that the passage had never run behind that arcade; and that, in fact, the central part of this end wall had been taken down bodily to the bed of the string course on the west

¹ Since this paper was read other interesting discoveries have been made in St Andrews. Notices of these have been added (September 1915), and are distinguished by being enclosed within square brackets.

² *The Ecclesiastical Architecture of Scotland*, ii. 16.

face, that is, to 3 feet below the floor of the wall-passage; and, on its east face, to the bed of the sixth course below the sills of the two large windows. This part of the wall had then been built up solid, plain on the east face, and with the blind arcade on its west face.



Fig. 1. West front of St Andrews Cathedral.¹

[From photo by Mr J. S. Boyd.]

Evidence was also found that when the wall-passage did exist, there had been an open arcade between it and the interior of the church. Part of an Early English jamb was found, *in situ*, near the north end of the passage, and has been exposed. There is part of a similar jamb near the other end of the passage, but it might not be safe to clear away any of the surrounding masonry. From the well of the staircase six steps had led up to the north end of the floor of the passage. These steps are now exposed (fig. 1). The lower five are complete; only half of the sixth

¹ The blocks used for figs. 1, 2, and 10 have been kindly lent by the Editor of the *Stone Trades Journal*.

remains. From their appearance it may be inferred that they had not been much used. One of the stones which was built over them belonged to the Early English jambs, and was therefore placed on the one at the north end of the passage. The position of this jamb is shown on



Fig. 2. West front of St Andrews Cathedral.

[From photo by Mr J. S. Boyd.]

fig. 2. The two windows which stood side by side, separated by a massive pier, cannot have been the original ones, and an examination of the remaining one shows that it had been "slapped" into the southern turret, as had also the window immediately above it, and the triangular window on the other side of that turret. The masonry on the east side of that triangular window, serving as a buttress, only dates from 1840.

The wall of the south aisle of the nave is continued beyond the west front; and it has long been noticed that the respond beyond that front is the same as the westmost one in the south aisle, and that its

distance from it is exactly double the distance between two in that aisle. This and some other details¹ led to the belief that at one time the Cathedral had been longer by at least two bays than it is now. In the summer of 1910 this was pointed out to the foreman mason. He afterwards took some measurements, and was satisfied that, if there was a respond hidden by the present west front, it could not be very far in. He therefore (on the 24th of August) took out a badly weathered stone with the intention of replacing it by a better one if nothing were found. To his delight he saw the long-lost respond only 8 inches from the east face of the wall (fig. 3). Needless to say, the stone he took out has not been replaced.

In the corresponding angle of the north aisle of the nave, the wall is barely 6 feet high. The late Mr David Henry, architect, now suggested that the turf on the top of it should be lifted, which was done, and there sure enough was the corresponding respond.² Shortly afterwards, its base was exposed by extracting a stone from the wall (fig. 4). This respond had projected about 6 inches beyond the inner face of the west front, and that projection had been hewn off. Incidentally, this shows that, in laying off the aisles of the nave, an error of about 14 inches had been made, unless, perhaps, the discrepancy should be regarded as an architectural refinement!

In the wall of the south aisle there are ten windows, four with semi-circular and six with pointed tops. Above the round-headed ones, and above the solid wall, the lime is the same; but over the pointed ones it is of a different colour. It is not unreasonable to suppose that originally all those ten windows were the same, and that at a later period six of them were altered. Mr John Cole, foreman mason in 1910, a very shrewd and observant man, was of opinion that the alteration had been made after the roof was on.

It may be noted that the external base-course on the north and south sides of the Cathedral, and also on its east end, has been the same throughout. If the facts and features to which I have previously referred do not absolutely prove that the Cathedral was at one time

¹ From the level of the ground up to a height of 18 feet the wall of the south aisle is not bonded into the west front. In 1889 it was found that the foundations of the wall of the north aisle extended about 30 feet beyond the west front, and that the foundations of the wall of the south aisle could be traced quite as far. The projecting boulders, which are now so prominent to the westward of the west front, are the foundations of a much later wall, built when the surface of the ground was temporarily much higher than it is at present and than it had been at an earlier period. The stones immediately below these boulders are merely underpinning inserted when the level of the ground was again lowered. The foundations of the continuation of the wall of the south aisle are on a still lower level.

² These two recently discovered responds, as well as the one to the west of the west front, have a narrow flat fillet on each of their three shafts. Of the responds in the wall of the south aisle only the westmost one has the fillets.

longer than it is now, they at least prove that it was intended to be longer; and that, with the object of carrying out that intention,

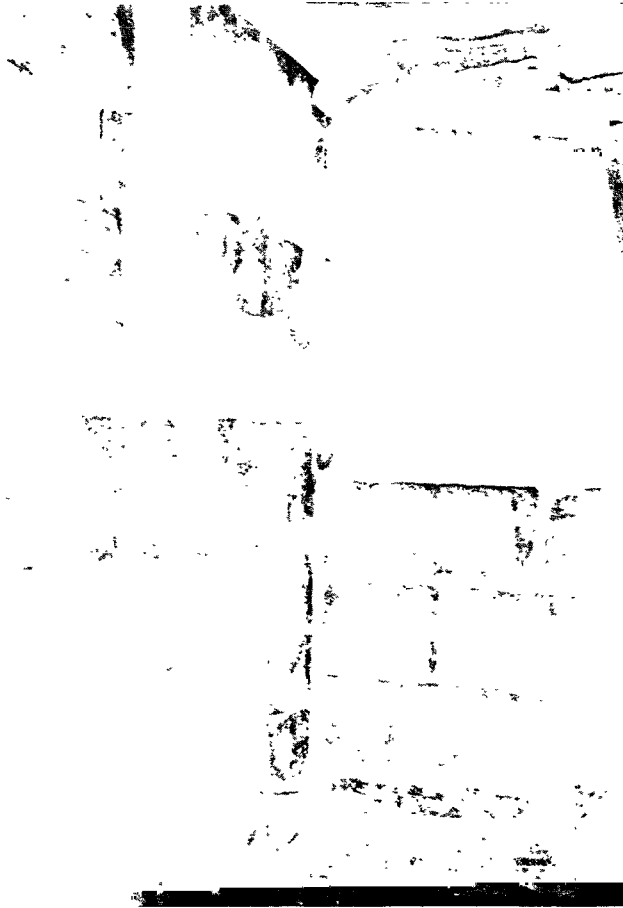


Fig. 3. Respond enclosed in south end of west gable of Cathedral.

[From photo by Mr Wilson Paterson.]

the north and south walls of the nave extended beyond the site of the present west front, and did so before the present west front was built.

There can be little if any doubt that before the upper portion of the central part of the west front was reconstructed there must have been a galilee or narthex resting against it, and that the "incomplete raggllets" (or more properly, perhaps, the hewn-off wall-ribs) belonged

to it.¹ Four pits were dug on its site. In two of them some rough masonry was found, which may have been the remains of foundations,

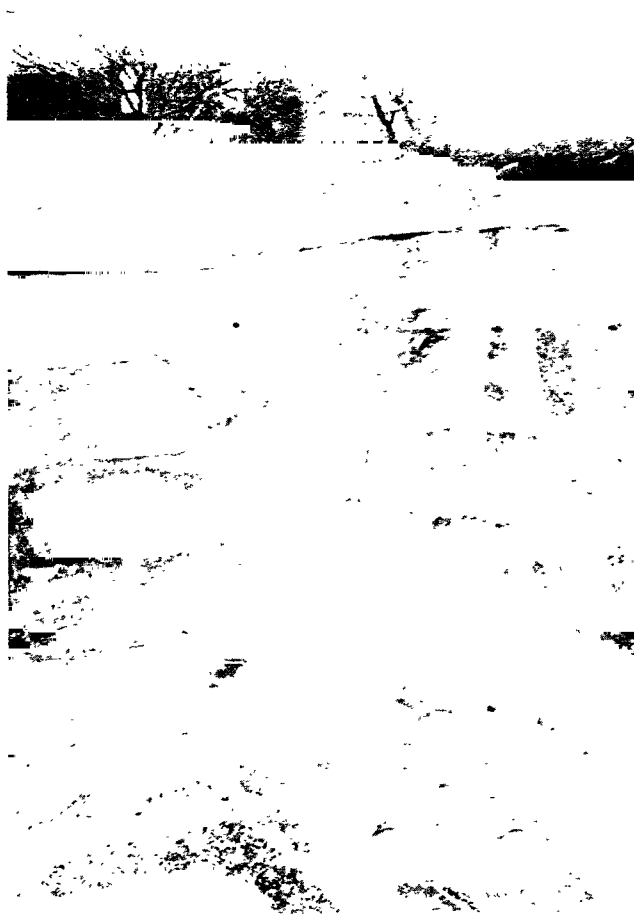


Fig. 4. Respond enclosed in north end of west gable of Cathedral.

[From photo by Mr Wilson Paterson.]

but whether of pillars of a galilee or not would be very difficult to determine.

Wyntoun credits Bishop Wishart (1273-1279) with having built nearly

¹ In fig. 1 remains of the vaulting of the galilee, or narthex, will be observed in its south-east angle, and also the base and lower part of the respond. About the middle of last century, a number of new stones were inserted in the west front, and on some of these the obliterated line of the wall-ribs was made continuous by a shallow incision.

all the nave, and also the west gable.¹ On the other hand, Walter Bower, who was a contemporary of Wyntoun's, says that Wishart sumptuously re-edified the west part of the church, which had been thrown down by a violent tempest.² It might be interesting, and not unprofitable, to attempt to reconcile these two statements; but, meantime at least, I must resist the temptation.

Before passing from the Cathedral, two or three minor discoveries may be briefly referred to. In June 1911 an iron cramp was found in the west wall of the south transept. It was immediately under one of the capitals of the arcading, and had been used to retain the shaft in its place. Three similar cramps were found in 1913 in the angles of the spire on the south-east corner of the east-end wall of the Cathedral. And in July 1914 a lead cramp was found in the north-west angle of the same wall, about 40 feet above the level of the ground. Two much heavier lead cramps have also been found in the walls. On the west face of the east gable, above the base course, there are marks of arcading. The size and position of the capitals can be determined by the lime still adhering to the wall. And now, since the wall has been re-pointed, the stumps of several lead cramps can be detected immediately under the marks of the caps. The iron cramps had been bent at right angles. One leg was bedded horizontally in the wall, and the other sunk perpendicularly in the top of the shaft. The idea was very simple; but the expansive force of the rust had certainly burst several of the shafts.

About the beginning of last month, the encroaching turf was removed from all that remains of two of the steps near the east end of the choir of the Cathedral. So far the only remarkable discovery at this point is what can perhaps be best described as a built socket-hole. It is nearly square, being $6\frac{1}{2}$ inches by $5\frac{1}{2}$, and is 16 inches in depth. There is a flag in the bottom; and the whole has probably been covered by a flat stone with an aperture on the top. The upper stones on the east, north, and south sides of this socket-hole are portions of Norman capitals; the one on the east, which is almost as fresh as the day on which it was hewn, has probably formed part of an arcade. The upper stone on the west side may have been either part of a base or of a capital (fig. 5).

[Other two of these built socket-holes have been since discovered in close proximity to the first, which I hereafter refer to as No. 1. The largest of the three, which I designate No. 2, is due east of No. 1; and the distance from the centre of the aperture of the one to the centre of the other is 2 feet $9\frac{1}{4}$ inches. The aperture of No. 2 is 9 inches square, and its depth is 2 feet $\frac{1}{2}$ inch. Four stones form a bottom to this socket-

¹ Laing's *Wyntoun*, ii. 258.

² *Scotichronicon cum Continuatione Walteri Boweri*, i. 361.

hole. A moulded stone built into its north side probably dates from the thirteenth century, and may have done service for a considerable period in another building before it was utilised in this structure. The top-stone is 1 foot $10\frac{1}{2}$ inches by 2 feet $1\frac{1}{4}$ inches, and is $7\frac{1}{2}$ inches thick. It is badly shattered. The upper surface is $1\frac{1}{2}$ inches below the level of the second step. If these two socket-holes were intended to be in the centre of the church, a slight mistake of $2\frac{1}{2}$ inches was made, which throws them 5 inches nearer to the south wall than to the north. No. 3 is much more rudely built than either of the others, and is smaller, the aperture

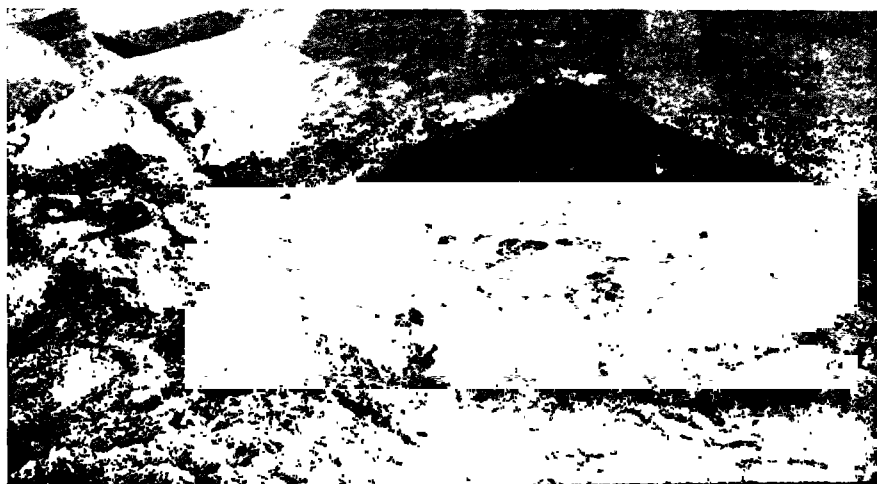


Fig. 5. Socket-hole, No. 1.

[From photo by Mr Wilson Paterson.]

measuring $4\frac{1}{2}$ inches by $6\frac{1}{2}$. The centre of No. 3 is 2 feet 7 inches further south than the centre of No. 2, and 1 foot 3 inches further west (fig. 6). No. 1 is on the line of the lowest step, and the aperture of No. 2 is immediately behind the line of the second step. Comparatively little of the steps remains, and it may be doubted whether that little is original. There must, however, have been steps there or thereabout. The height of the first step is 7 inches, of the second 6, and of the third 4. This last is on the level of and forms part of the paved floor long supposed to mark the site of the high altar. The floor is formed of freestone slabs. Of those uncovered the smallest has been $13\frac{3}{4}$ inches by 7, and the largest $18\frac{1}{2}$ by 17. Some of the slabs have been badly smashed and sunk considerably below their original level. This was probably done by the fall of the vaulted roof. The socket-holes and

the portion of the paved floor which was temporarily uncovered in August have again been covered by soil and turf. The distance from the east side of the aperture of socket-hole No. 2 to the inner face of the east gable is 59 feet 8 inches. When No. 1 was discovered it was supposed to be a socket-hole for the standard of a lectern; but the discovery of the other two has discounted that theory, unless, of course, they were not in use at the same time. Mr Alexander Hutcheson



Fig. 6. Socket-holes, Nos. 1, 2, and 3.

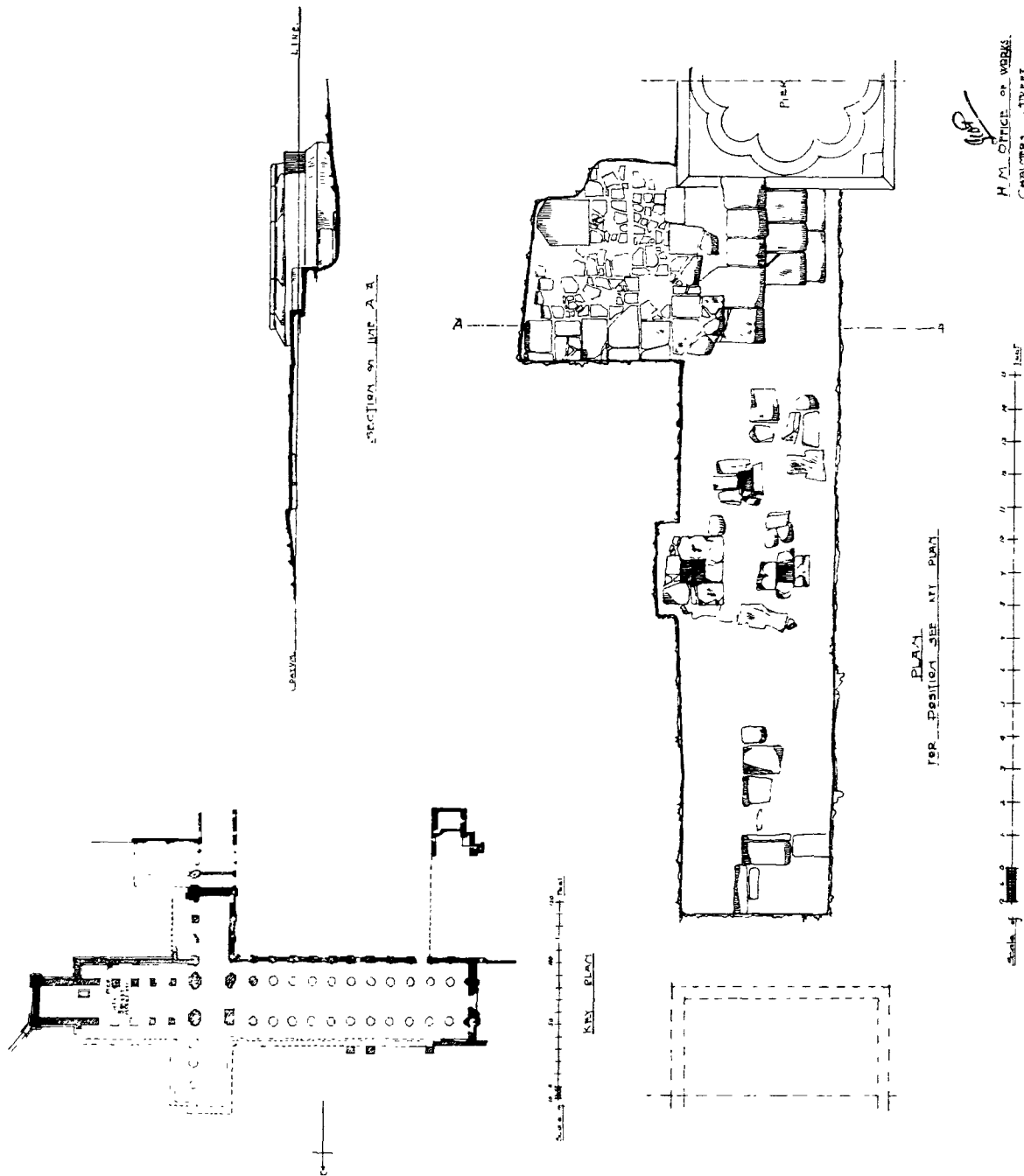
[From photo by Mr Wilson Paterson.]

has suggested that they may have been designed for the safekeeping of relics.¹ The massive top-stone of No. 2 seems rather to favour the idea of a socket-hole for some piece of church furniture. It has also been suggested that the hearts of eminent persons may have been deposited in them. Bishop Fraser died in France in 1297, and was buried in the church of the Preaching Friars in Paris; but Bower states that his heart was brought to Scotland, and deposited by Bishop Lamberton "in pariete ecclesiæ S. Andreæ, juxta tumbam Episcopi Gamelini."² Bower had previously said that Gameline was buried "in nova ecclesia, juxta magnum altare."³ Wyntoun, who is more specific, says that Fraser's

¹ In support of this suggestion, Mr Hutcheson cites Bloxam's *Principles of Gothic Ecclesiastical Architecture*, eleventh edition, ii. 146, 147; and Shipley's *Glossary of Ecclesiastical Terms*, 1872, sub "Confessio."

² *Scotichronicon*, i. 361.

³ *Ibid.*, i. 360.





 H. M. OFFICE OF WORKS
 CANAL STREET
 LONDON, August 1915.

Fig. 7. St Andrews Cathedral, showing socket-holes, etc., as uncovered August 1915.

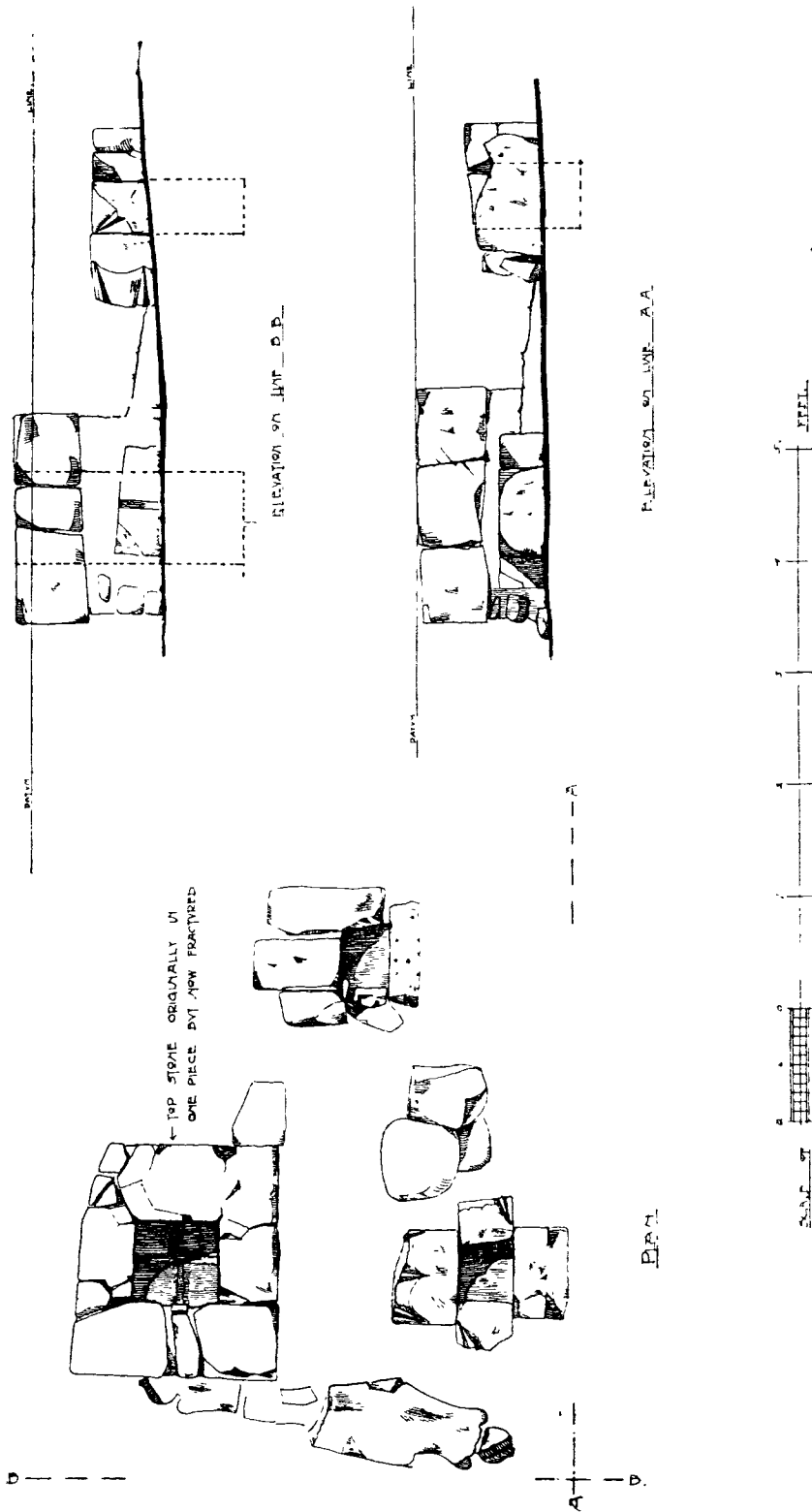


Fig. 7A. St Andrews Cathedral detail drawing showing socket-holes as uncovered August 1915.

MANUSCRIPT OF
CAPTAIN J. J. J. J.
PUBLISHED AUGUST 1915

heart was laid within the wall, and points to the spot as being between Gameline's tomb and Lamberton's. In another passage he states that the tombs of Gameline, Lamberton, and Walter Trail were in "the north halff" of the Cathedral.¹ Of Bishop Trail, Bower says that he was buried "juxta magnum altare ecclesiæ Sancti Andreae, ad aquilonem intra pulpitum."² Assuming that the steps now uncovered were the steps leading up to the high altar, these references would prove that Fraser's heart was deposited near the socket-holes, but not in any of the three. Bishop Wardlaw, who died in 1440, was buried "in pariete medio chori et capellæ nostræ-Dominæ."³ The late Lord Bute held that this statement makes it evident that the Lady Chapel was on "the north side of



Fig. 8. Fragment of Capital found in the Cathedral.

[From a drawing by Professor Gourlay.]

the choir."⁴ It has now been suggested that the socket-holes may be post-Reformation. Their position and details are shown on figs. 7 and 7A.]

[The wall of the north aisle of the nave of the Cathedral must have shown signs of weakness, as massive buttresses had been built against it. Of these buttresses little remains above the ground. In order to re-point the one opposite the fifth pillar from the west end, the turf was removed, and this exposed five Early English moulded stones which had been used instead of common rubble. One had been previously visible under a block on the south side. In the beginning of July a fragment of a beautiful Early English capital (fig. 8) was discovered under another block on the same side. These blocks have not been moved. The six moulded stones and the carved fragment found in this foundation were only a few inches above the level of the ground. The heart of the

¹ Laing's *Wyntoun*, ii. 345, 346, 375.

² *Scotichronicon*, i. 365.

³ *Ibid.*, i. 366.

⁴ MacGibbon and Ross's *Ecclesiastical Architecture of Scotland*, ii. p. xv.

base of the fifth pillar is occupied by a section of a clustered column of the same size and design as the stumps still standing in the choir. A more perfect one occupies the heart of the base of the sixth pillar.]

In July 1911 a rather uncommon feature was observed in the south wall of the Chapter-house. This was a damp-proof course of red clay about a foot above the present level of the ground. There is a little sand mixed with the clay. It may not be irrelevant to state that, in the autumn of 1904, it was found that the foundation-stones of the east wall of the Chapter-house are bedded in and jointed with red clay.

The stone effigy of a stonemason was found on the 19th of last September in the north-east tower of the Abbey Wall. The carved side of the stone was turned towards the heart of the wall, and the back of the plain slab on which the effigy rests was exposed to the outside. The mason is dressed in gown and hood, a hammer is on his right side, a square on his left, his feet rest on a mason's "mell," or mallet, and his head on two cushions, the one lying diagonally above the other, and having a tassel at each corner. The tapered slab on which the figure lies is $5\frac{1}{2}$ inches thick, 1 foot $6\frac{1}{4}$ inches broad at the top, and 1 foot $3\frac{1}{4}$ inches at the foot. The sides are not quite the same length, the one being 3 feet 1 inch, and the other $\frac{3}{4}$ of an inch more. The head of the figure is $6\frac{1}{4}$ inches in relief, and the "mell" $3\frac{1}{2}$ inches. The slab, therefore, has been practically a foot thick.

The general appearance of the effigy and the cushions in particular obviously indicate that it was intended to be recumbent; but on the back there are two dook holes, and the lower part of the dress does not sag in the centre. Cutts gives an illustration of a tapered slab at Bottesford, Notts., on which the head of the figure rests on two cushions, the one placed diagonally above the other, but these cushions have no tassels.¹ The upper cushion supporting the head of Philippa, Duchess of York, who died in 1433, has a tassel at each corner.² In Balmerino churchyard there is an incised slab showing a cross on a calvary of four steps, with a square, trowel, and two hammers, but no "mell."³

The St Andrews effigy apparently commemorates not a boy, but a man, though not an aged man, and certainly not a dwarf. A row of buttons, beginning at the neck of the gown, ends at the bottom of the skirt; and round the waist a cord is tied. The shoes are pointed (fig. 9). The dress does not necessarily indicate that the subject of the effigy was a monkish mason. This is evident from an indenture between the Abbot of Arbroath on the one part, and "William Plumer of Tweddale,

¹ Cutts' *Manual for the Study of Sepulchral Slabs and Crosses*, 1849, pl. 70.

² Stothard's *Monumental Effigies of Great Britain*, 1876, pl. 117.

³ Campbell's *Balmerino and its Abbey*, 1899, p. 598.

burges of the cite of Andirstoun," on the other part. This indenture is dated 16th February 1394-5. William Plumer undertook to "theke the mekil quer . . . wyth lede, and guttir yt al abowt sufficiandly with lede." One of the stipulations was that, when the work was finished, he was to receive "a gown with a hude."¹ The stone effigy probably belongs to that period: and, if so, cannot commemorate the



Fig. 9. Effigy of a Stonemason.

[From photo by Mr Wilson Paterson.]

John Morow who had charge of the mason-work of St Andrews Cathedral, and also of Glasgow, Melrose, and Paisley.

Most of the Abbey Wall was erected by Prior John Hepburn, in the first quarter of the sixteenth century, and was completed by his nephew, Prior Patrick, afterwards Bishop of Moray. Prior John was a great builder, but not over scrupulous as to the materials he used. Within the last few years, from this wall a complete Celtic cross-slab, and a large fragment of another have been recovered. And there are

¹ *Liber S. Thome de Aberbrothoc*, ii. 42, 43.

still in the wall many mullions of windows, and other moulded stones, from earlier buildings. Although this effigy is now in two pieces, it may have been quite whole when it was seized for building material. Had it been lying about in broken condition, it does not seem likely that the two pieces would have been carried to the same tower, and fitted together in the wall. That part of the tower from which it was taken is only a few feet above the present level of the ground; but formerly the ground at that point was much lower, as the heuch (known as the Kirk Heuch) led down there to the harbour. The slab may have been broken purposely for ease in handling, or it may have been accidentally broken when it was being put into the wall. Where it is broken through, there is a fault in the stone.

In the tower immediately to the west of this one, a built-up doorway has been opened. This doorway gave access by an inside stair to the top of the wall. The stair, or part of it rather, still remains. It led upwards from a chamber in the tower. Access to that chamber was almost certainly obtained by an outside stair (as in the neighbouring tower, known as the Haunted Tower); and below this chamber was another one with shot-holes.

We turn now to the Castle. Looking at the fore-tower, either externally (fig. 10) or internally, no one can help noticing that it has been subjected to considerable alterations. Hitherto there have been differences of opinion as to what these alterations portended. Some insisted, Messrs MacGibbon and Ross for example, that at one time the entrance passed through this tower;¹ and, on the other hand, that opinion has been stoutly contested. The matter is now settled. There has been an entrance through this tower. Viewed from the interior, there has long been visible what appeared to be the upper part of the east jamb of this entrance, with the springer of an arch, and part of a relieving arch above it. Still more to the point, there is a broad sloping groove, or chase, higher up in the wall, in which one of the counterpoises of the drawbridge was believed to have worked. The flooring-flags in the southern end of this apartment were lifted last autumn and the packing underneath cleared out (fig. 11). The east jamb of the earlier entrance is now visible from top to bottom, and the west one from the recent floor-level to the bottom. The blocking of the entrance is rubble, while the jambs and adjoining walls are ashlar.² Looked at either from the interior or exterior, it is apparent that the centre of the larger windows in that tower is not in line with the centre of the

¹ *Castellated and Domestic Architecture of Scotland*, iii. 331.

² Fig. 11 shows part of the east jamb, the springer of the arch, part of the relieving arch, and the lower end of the slot or chase for the counterpoise of the drawbridge. Three of the stones of the relieving arch have been recently inserted to sustain the superincumbent masonry.

old entrance. Looked at from the interior, the entrance is very far from being in the centre of the apartment, but the window which cuts through the upper part of the entrance is in the centre of the apartment. Looking upwards, however, it is noticed that the centre of the old entrance is in the same line as the apex of the gable. It is also obvious



Fig. 10. Fore Tower of St Andrews Castle.

[From photo by Mr J. S. Boyd.]

that the east wall has been thickened by about 3 feet on the inner side. Cardinal Beaton had begun nearly three years before his assassination to strengthen the Castle; and, at the time of the assassination (29th May 1546), "Babylon," to borrow Knox's expression, "was almost finished."¹ Kirkcaldy of Grange and his fellow-conspirators got access when the gates were opened and the drawbridge lowered to admit a fresh supply of stone and lime. A contemporary writer says that when

¹ Laing's *Knox*, i. 174.

the French captured the Castle in 1547 they "tuke down the hous."¹ According to Knox, "the Castell . . . was rased to the ground, the block houssis thair of cast doune, and the walles round about demolished."²

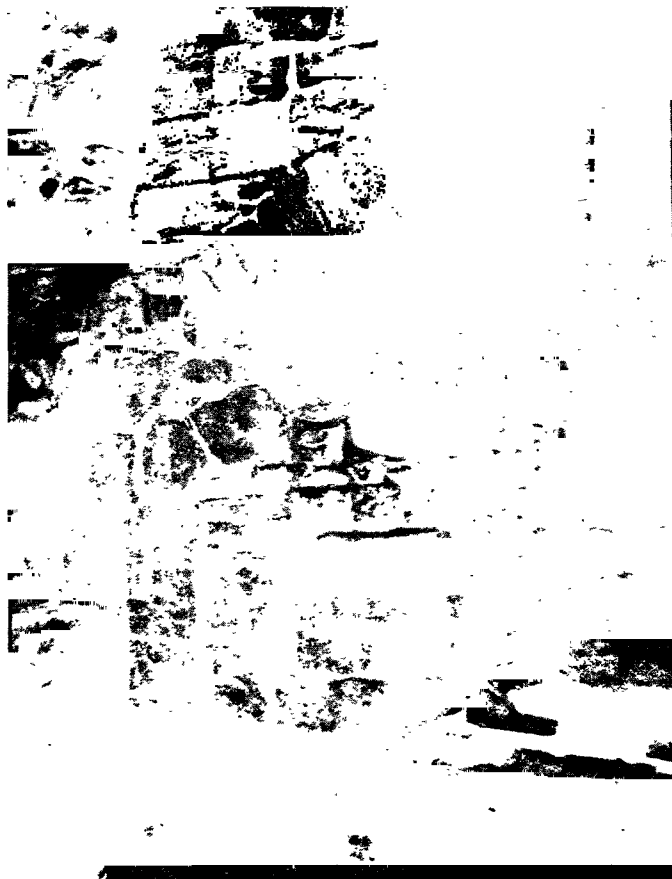


Fig. 11. Interior of Fore Tower of St Andrews Castle.

[From photo by Mr Wilson Paterson.]

This is not literally accurate. Hamilton had rebuilt the Castle before Knox returned to St Andrews, and he may have been unable to recognise any of its former features. If the badly weathered arms over the window are Archbishop Hamilton's,³ the entrance may have been altered by

¹ *Diurnal of Occurrents*, p. 44.

² Laing's *Knox*, i. 208.

³ Writing seventy-seven years ago, when the arms were much less weathered than they are now, the Rev. C. J. Lyon said that they were Hamilton's, and that his initials were there also (Lyon's *History of St Andrews*, 1838, p. 203).

him; but, if the arms are the Cardinal's, then the alteration was probably, almost certainly, his.

On the inside face of the front wall the old entrance has been 10 feet wide. The height of the east jamb, from the bottom of the rybats to the spring of the arch, is 11 feet 7 inches; and from the floor-line a foot less. On the outer face of the wall the entrance seemed to have been 11 feet 6 inches in width; but last Thursday (4th March), when some defective joints were being raked out, it was found that there is a small chamfer and a check on the east side. The chamfer is about 2 inches broad and the check 12 inches. Assuming that there is the same on the west side, this would reduce the width of the doorway externally to 9 feet 2 inches.

[A few days after this paper was read the springers of the external arch were found. This arch had been a pointed one, and the upper part of it had been removed, as it would have interfered with the bay of the lower window. The 12-inch check is $6\frac{1}{2}$ inches from the external face of the wall; and, 14 inches further back, the check for the portcullis was found on both sides. This portcullis check is $5\frac{1}{2}$ inches wide and about the same in depth. It is now pretty obvious that the external sill of the gateway projected beyond the face of the wall, and had been broken at both extremities where the iron crooks or hinges for the drawbridge were battled into the stone. The sill was entirely hid by the mass of sloping masonry, or pitching, by which the base of the tower had been strengthened. The chase for the counterpoise beam of the drawbridge has now been followed up to a considerable height, and has been found to taper gradually from $16\frac{1}{2}$ inches in breadth at the bottom to 9 inches at the highest point laid bare—that is, at a distance of 18 feet measuring on the angle. The extra width at the bottom was no doubt intended to allow the inner end of the beam to be more easily loaded with a sufficient quantity of lead. The bonding of the stones in the upper part of the chase has been very skilfully done. The front wall is from 5 feet 9 inches to 5 feet $10\frac{1}{2}$ inches in thickness, and the pivot on which the beam worked has been 3 feet 11 inches from the outer face. From the pivot-point, both outwards and inwards, the wall had been slightly rounded so that the beam would work freely and not rub on it. Part of the sill remains on which the beam rested when in a horizontal position. Unlike the drawbridge at Bothwell Castle, which was worked by a central beam, this one at St Andrews had been worked by two, one at either side; but of the one on the west side no trace has been discovered.]

The apartment behind the gateway had been about 20 feet 6 inches in length by about 19 feet in breadth. In the west wall of this apartment a shot-hole, long covered up, has now been revealed. It had been

in use while the entrance was through this tower, and before the present front wall to the westward had been built. That front wall completely hides the outer opening of the shot-hole. The opening into



Fig. 12. Temporary Opening in the Castle, now re-opened.

[From photo by Mr Wilson Paterson.]

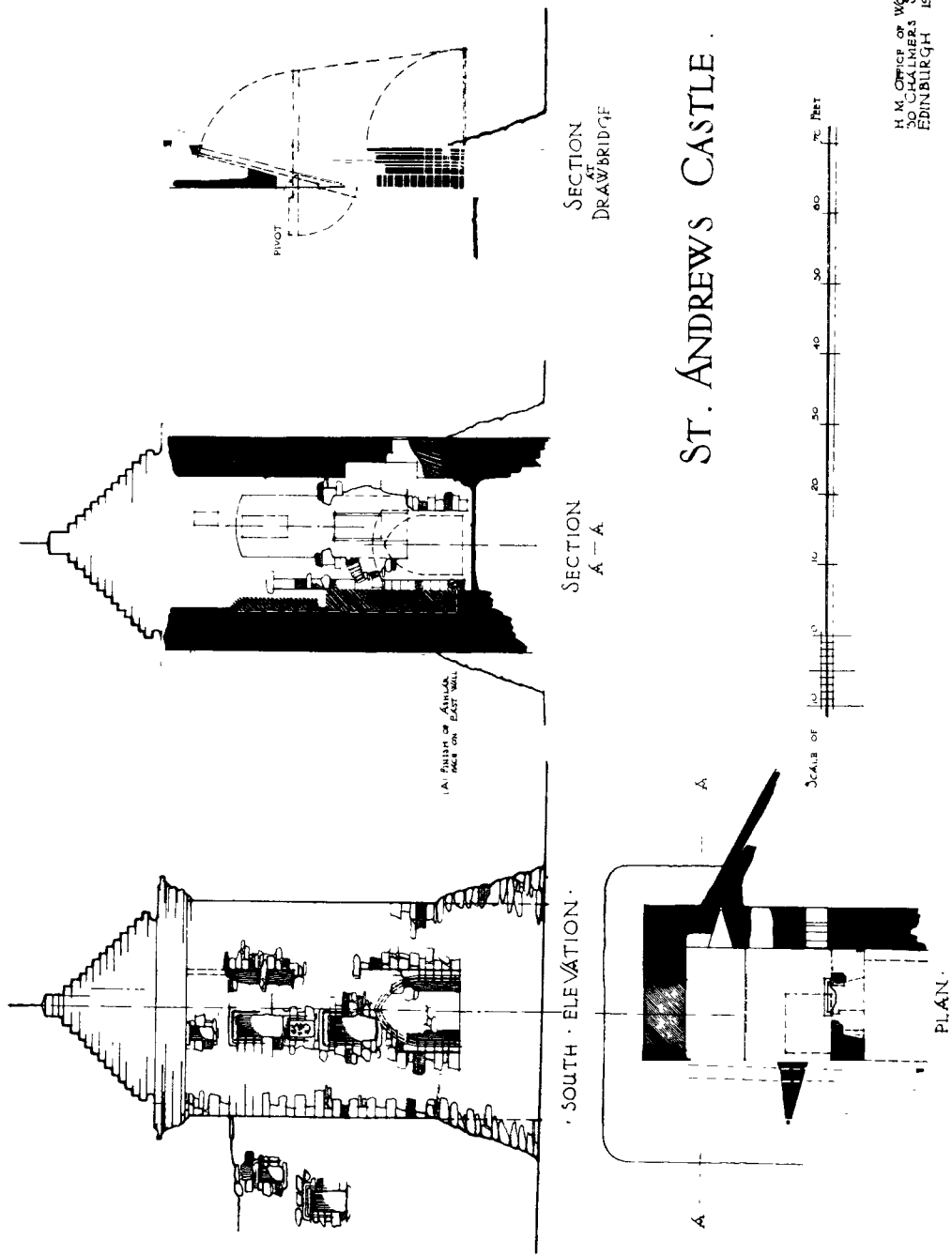
the courtyard, through the back wall of the tower, was 9 feet in breadth. [The line of the jamb on either side, as it emerges into the courtyard, has now been made clear by picking the lime out of the joints.]

In the same wall as the shot-hole, but higher up, an old arched opening has been re-opened. It is 5 feet 2 inches in height. The width varies from about 2 feet 10 inches to 3 feet 7 inches, the sides being rough, and some of the stones projecting beyond the others (fig. 12).

This was probably a temporary opening through which material was carried when the Castle was being built or extensively altered. Here the wall is 5 feet 11 inches thick. Access to the interior of the tower will, in future, be through this opening; and henceforth the long-buried inner face of the lower part of the tower will be exposed to view. The interior of the old entrance had been filled up with stones, not built in with lime, but laid in uneven courses with layers of sand between the courses. Of these stones, some were squared, some moulded, most were rough rubble. Below the old floor level several courses are built with lime. The elevation, plan, and sections of the fore tower, which Mr J. Wilson Paterson, of H.M. Office of Works, has had prepared to illustrate these discoveries in the Castle, do so admirably (fig. 13). The Castle, it may be mentioned, was used as a State prison so late as 1646. The Town Council minutes show that ten years later the slates and timber were sold in order to repair the harbour. And Dr Skene's accounts, preserved in the Register House, show that, some thirty years later still, "ane hundred cart load of stones" were "digged out of the Castle walls," and that a number of men "wrought severall dayes in digging stones out of the spur before the Castle, and in carrying them to the tope of the hill." This material was taken to repair St Salvator's College.

At the Black Friars chapel a base plinth was found, and, by lowering the surrounding ground, it has been permanently exposed, thus adding to the stateliness of the building. A fragment of glazed paving tile with a check pattern was found in the floor of this chapel *in situ*. It is now in the Cathedral Museum. The fragments of tiles found in the Cathedral at various times are of many different colours, but none of them has a pattern.

[On the 21st of April, many fragments of a Celtic cross-slab were found in the heart of the south wall of the choir of the Cathedral, near the east end, and about the level of the base course. These fragments had been utilised as mere packing. The largest only measures $14\frac{1}{2}$ inches by $5\frac{1}{2}$, and is $3\frac{1}{2}$ thick; but it shows the head of the cross, which is decorated with interlaced work. The other sixteen fragments are very small, and seven of them bear no trace whatever of ornament. On the 20th of May, when a grave was being dug a few yards beyond the east gable of the Cathedral, the end of a recumbent cross-slab was found lying 4 feet 3 inches below the present surface of the ground. It was apparently *in situ*, but only 1 foot of the narrow end was in the grave which was being opened. Mr Mackie, however, with praiseworthy zeal, was determined to get it all out if possible; and by tunnelling horizontally into the next grave he succeeded, although with great



ST. ANDREWS CASTLE.

H. M. OFFICE OF WORKS,
50 CHALMERS ST.,
EDINBURGH 1913

Fig. 13. Elevation, plan, and sections of Fore Tower of St Andrews Castle.

difficulty.¹ At some previous time the stone had unfortunately been broken into six pieces, but it is quite complete, and is of a different type from any of the other St Andrews specimens. It seems, indeed, to be unique. On the upper surface there are three crosses, each having a nimbus or circle divided into quadrants. The one² at the narrow end of the slab is not a true circle, being fully an inch more across the stone

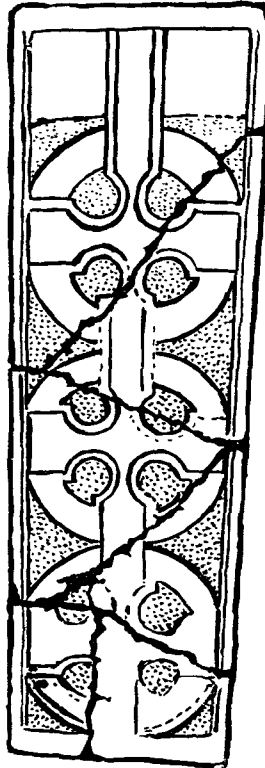


Fig. 14. Celtic Cross-slab.²

[From sketch by Mr D. Hardie.

than longways. The crosses, circles, and background are undecorated. There is no trace of interlaced or fret or spiral ornamentation. The slab is 4 feet 11 inches long, 19 inches broad at the head, and 15 at the foot. The thickness varies from 4 to 6 inches. The back is rough and unequal, the broad end looks as if it had been finished by a pick, the narrow end is not so rough, and the sides are smoother. Tapering as it does, the slab

¹ Mr Mackie has at various times dug up five complete Celtic slabs, and portions of eleven others.

² The block for this illustration was kindly lent by the Editor of *The St Andrews Citizen*.

in shape is more akin to the medieval than to the ordinary Celtic slabs, and this may perhaps indicate that it is somewhat late in date (fig 14). The only other Celtic cross-slab known to me which has had more than one cross on one of its surfaces is in Dunning Church.¹ It has had two crosses, each with a nimbus; but apparently not more than two. In the churchyard of Aylesford, Kent, there is a fourteenth-century tapered slab, with three floriated crosses graduated in size to suit the shape of the slab.²

Last year the harbour gates were reconstructed. In the course of the operations two large stones were found with massive Norman



Fig. 15. Stones from the Harbour Gates.

[From photo by Professor Gourlay.

mouldings. They may have belonged to an earlier building than the Cathedral, perhaps to the first parish church, which stood in close proximity to the Cathedral. The larger stone is 2 feet 6½ inches by 16 inches by 10 inches (fig. 15).

The earlier discoveries to which I have referred were made while the conservation of the ruins was under the supreme direction of Mr Oldrieve, and the later ones while under that of Mr Peers, both of whom have taken the keenest interest in these matters. Mr Peers and Mr Wilson Paterson were present when the effigy of the stonemason was being taken out of the Abbey Wall.

¹ Romilly Allen's *Early Christian Monuments of Scotland*, pp. 319, 320.

² K. E. Styan's *Short History of Sepulchral Cross-slabs*, 1902, pl. 30.

Before closing, it may not be out of place to mention that Mr James Martin, while in charge of the work at St Andrews, experimented on the old lime. He took three samples, and, after pounding them down, mixed them with water. One of the samples set again in a kind of a way, another set fairly well, and the third set quite hard. That last sample was five hundred years old. It must have been magnificent stuff to begin with. The masons who have been working on St Rule's, the Cathedral, the Castle, and the Blackfriars have come to the conclusion that the stone of all these buildings is local. Mr Alexander Thoms has dealt with the stone of St Rule's.¹ On the 4th of February 1434-5, Walter Monypenny of Kinkell agreed to allow the prior and convent of St Andrews "to brek stanys" for nine years "in the huch of Kynkell," and to "away leid" them through his lands.² Kinkell is about two miles from St Andrews. A few years later the Bishop of Argyle gave the Prior of St Andrews liberty to dig stones out of his quarry at Balcomie near Crail.³

For the illustrations I am chiefly indebted to Mr J. Wilson Paterson, of H.M. Office of Works, to Professor Gourlay of the Royal Technical College, Glasgow, and to Mr James S. Boyd of the same College, who has kindly lent three of his blocks. Messrs Innes of Cupar have lent one block. Mr Alexander Hutcheson has made many suggestions; and Mr R. B. Strachan has been very helpful with measurements and otherwise.

¹ *Proceedings of the Society of Antiquaries of Scotland*, xlvii. 426-428.

² *Liber Cartarum Prioratus Sancti Andree*, pp. 423, 424.

³ Keith's *Historical Catalogue*, 1824, p. 238.

II.

CAVE EXCAVATIONS IN EAST FIFE. BY A. J. B. WACE AND PROFESSOR JEHU. WITH DESCRIPTIONS OF THE ANIMAL REMAINS BY PROFESSOR J. C. EWART, M.D., F.R.S., AND JAMES RITCHIE, M.A., D.Sc., ROYAL SCOTTISH MUSEUM.

The excavations described in this report form part of an attempt to explore the Fife coast from St Andrews to Crail. The Court of the University of St Andrews most generously made grants of money to defray the expenses incurred.

Two caves were explored, the Kinkell Cave, near St Andrews, and Constantine's Cave, near Fife Ness. Both have been eroded by the sea in the Calciferous Sandstone Formation prior to the emergence of land, evinced by the 25-feet raised beach on the upper margin of which they lie. This raised beach records an uplift of land after the appearance of Neolithic man in Britain.

I. THE KINKELL CAVE.

In the early summer of 1913 we examined this cave, and Mr Farmer, the owner, courteously gave us permission to excavate. Work began on May 20th and continued till June 12th. The obligation under which we were laid of conducting the work so as not to injure the amenities of the site, restricted somewhat the progress of the operations and rendered a complete examination impossible.

The cave lies on the cliffs about 2 miles S.E. of St Andrews and looks on to the sea facing N.E. (fig. 1). Some way in, the floor stands about 25 feet above high-water mark, but just at the entrance it is considerably higher owing to the fall of rock *débris* from above. The cave is about 15 feet wide and 80 feet long, but at the extreme end it tapers off along a bedding-plane in the sandstone. The floor has a double slope, one from north to south due to the pile of fallen rubbish at the entrance, the other from west to east due to the angle of dip of the sandstone beds. At the mouth the fallen *débris* is piled up so high on the west as almost to obliterate the entrance, but on the east it is considerably lower and thus affords access to the interior. Outside, the ground falls away steeply to the modern beach below. Within the pile of rubbish at the west end of the entrance we found a rough dry wall which had no solid foundation. This seems to be of modern date.

A trench was dug at the eastern, or low, side of the mouth, cutting into the cave from north to south. This trench was sunk to a depth of

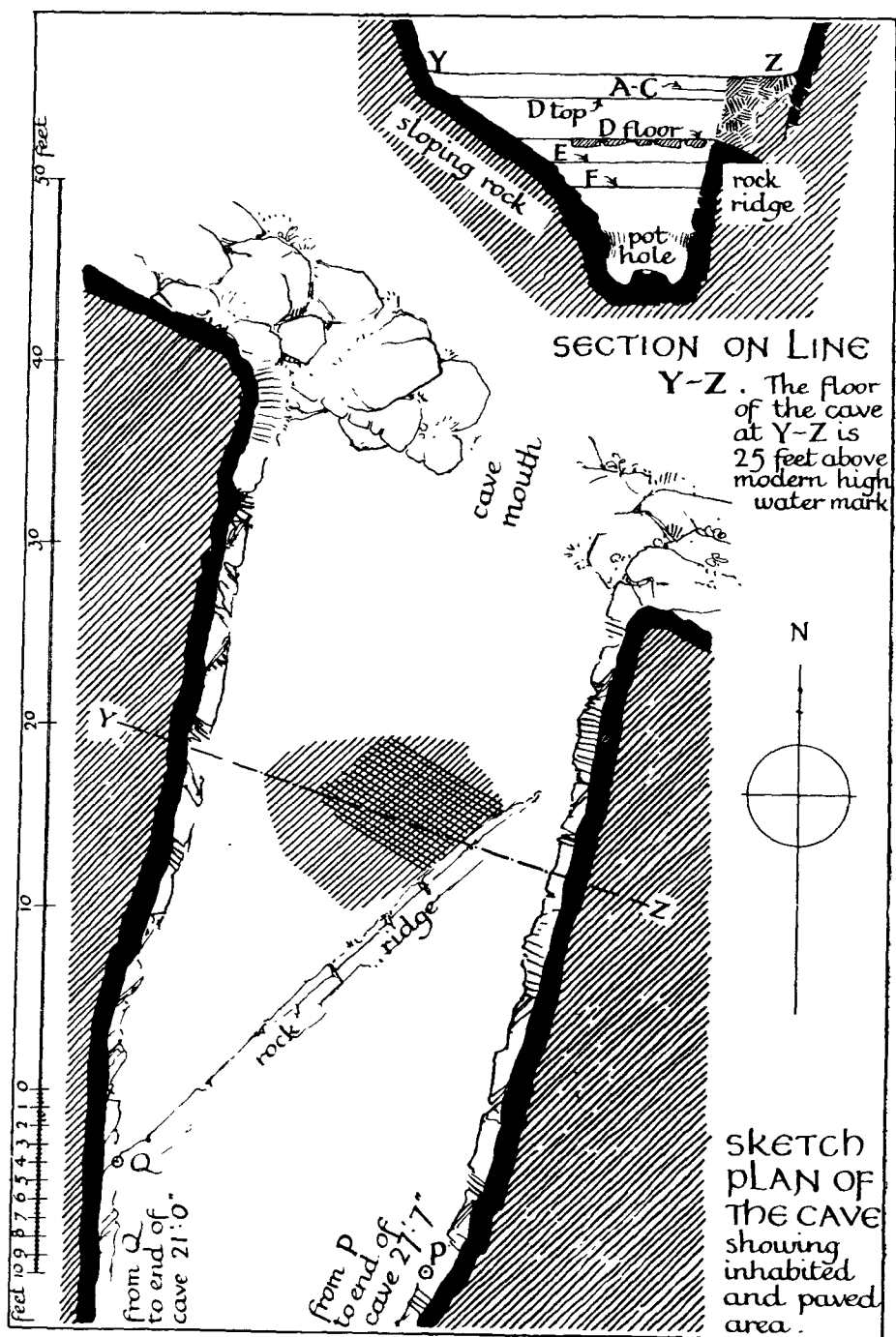


Fig. 1. Plan and section of Kinkell Cave.

6 feet. The material composing the floor consisted of a rubble of sandstone blocks and fragments which had fallen from the roof above. At a distance of about 12 feet from the entrance traces of human habitation were detected by the presence of a thin black layer lying at a depth of from $1\frac{1}{2}$ to 3 feet below the present floor. From this point inward a pit was sunk covering approximately the hatched area seen on the plan. The section revealed in the pit showed interesting stratifica-



Fig. 2. Kinkell Cave floor, and deposit above it.

tion of such a nature as to prove that the cave had been inhabited at several periods, and a rich find of bones was obtained. The stratification is shown on the section accompanying the plan. At a depth varying from 1 to 3 feet below the modern floor lay the thin black layer already mentioned. It covered but a small area and yielded only a few bones and shells. $1\frac{1}{2}$ feet below this another black layer was seen, nearly 3 feet thick and extending over the whole of the hatched area. This deposit was full of decomposed organic matter indicating human occupation, and it rested on a roughly made floor of sandstone slabs laid side by side (fig. 2), covering the space shown on the plan by the cross-hatching. Here quantities of bones were obtained which are fully described

below. It may, however, be mentioned at this point that amongst them we found several fragments of boars' tusks—a fact interesting in view of the historic evidence that wild boars were once plentiful in Fife. Shell remains of periwinkles, whelks, and limpets were extraordinarily abundant. Fragments of pottery were scarce, only three pieces being found, but these are important. Two of these are fragments of ordinary reddish and rather thin Romano-British ware. The third is a piece of *terra sigillata* (Samian ware), and evidently is the centre of the bottom of a bowl. It shows a minute portion of a letter, perhaps an M, at the end of the potter's stamp. These potsherds date the inhabitation of the cave to the period of the Roman occupation of Britain and may safely be assigned to the second century A.D.—a time when Southern Scotland was in Roman hands. But since the sherd was found in the middle of the deposit, the floor may possibly be of somewhat earlier date. Other finds in this stratum (D on the plan) include the handle of a bronze jug and a quantity of iron nails.

Lying on the top of this stratum we found a slab of red sandstone on which some curious incisions can be seen (fig. 3). The slab appears to be derived from the Old Red Sandstone Formation, which does not occur *in situ* anywhere near the cave. It must have attracted attention by its colour and may have been brought in from some distance. On the right is a human figure, shown full face, which may possibly represent a monk or hermit. At his side, and just below the left hand, a small cross has been incised. On the right side of the figure are four more crosses, two above and two below. One of the uppermost is a St Andrew's cross, and the other an ordinary cross with a pyramidal base. The two crosses below are of an elaborated type with decorated centres, and near one of them is an obscure incision that may be intended for some kind of monogram. The two lower crosses are obviously somewhat like those seen on the second class of sculptured stones of the Celtic Period, as for instance those at Meikle.¹

The crosses mentioned by Stuart² as visible on the wall of the cave are probably of the same period. One of the crosses is still to be seen, and also a "holdfast" like those at Caiplic,³ and at one place the figure of an animal, possibly a red deer, has been incised on the roof.

Below the paved floor was another layer of sandstone rubble, and in this at two levels (E and F in the section) were thin black streaks indicating two short periods of human occupation. These yielded only a few bones and shells, and are so close below the paved floor that they cannot have been very much anterior in date to it. Solid rock was met around

¹ Romilly Allen, *Early Christian Monuments of Scotland*, p. 296, No. I., fig. 310.

² *Sculptured Stones*, ii. p. lxxxviii.

³ Stuart, *op. cit.*, ii. p. lxxxix, pl. 29.

the margin of the paved floor, forming a steep face on the east side and a sloping face in the direction of the dip of the beds on the western side. A short distance below the lowest black layer we reached the rocky floor of the cave in the form of a pot-hole, 3 feet deep at the centre, and filled with shingle. This rocky floor lies about 14 feet above the present high-water mark.



Fig. 3. Red sandstone slab with incised figures.

Trial pits dug in the back of the cave revealed little depth of soil and yielded nothing of interest.

The data lead us to the conclusion that the cave was inhabited in the Roman Period, and again during the Celtic Early Christian Period. Later, according to local tradition, it served as a place of refuge for Covenanters.

II. CONSTANTINE'S CAVE.

This cave (figs. 4 and 5) lies a little to the north of Fife Ness, and its mouth is but a few yards above high-water mark, facing a little east of north. It was eroded by the sea in a promontory of sandstone



Fig. 4. Mouth of Constantine's Cave.

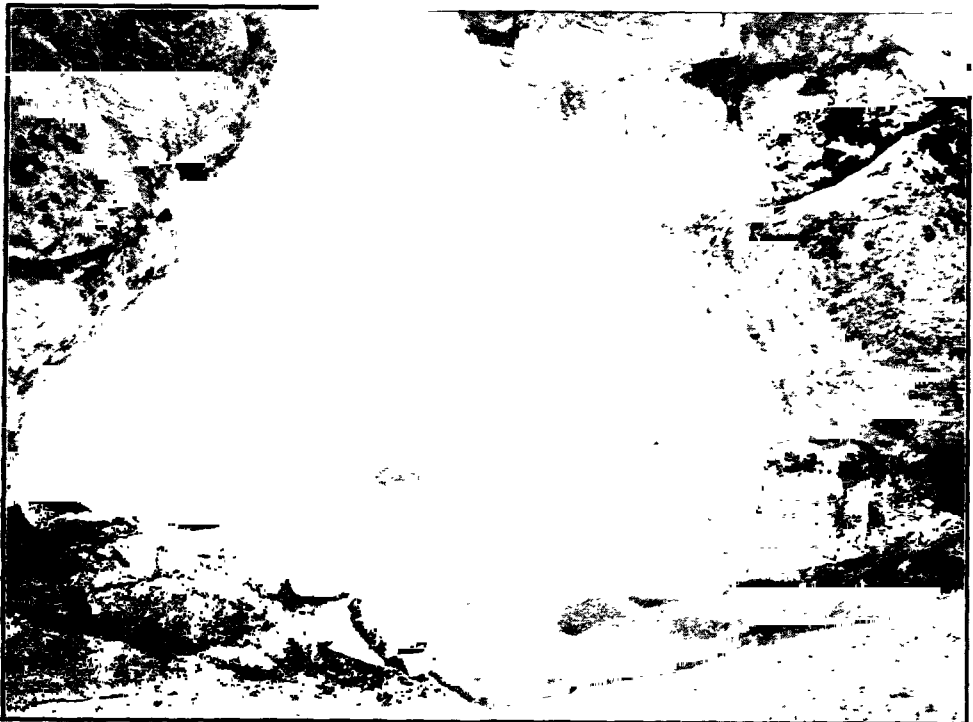


Fig. 5. Constantine's Cave.

projecting from the old cliff which marks the upper limit of the 25-feet raised beach. Mr Guthrie, the factor of Pitmilny, readily granted us permission to excavate. The operations extended from June 22nd to June 27th, 1914.

Traces of a mortar-built wall were found running across the mouth of the cave. The wall was apparently not a continuous one, but was interrupted by a narrow entrance facing almost due north. There is evidence to show that the whole front of the cave was at one time walled and roofed in where the natural rocky roof fails. Traces of mortar can still be seen at many places along the face of the rock bounding the mouth of the cave. Thus the cave was once enclosed to be used probably as a habitation or a chapel. On the west side the wall is founded on the rock, but on the east it rests on sand (fig. 6, R in the section). Below the sand, in the bottom of a shallow pot-hole, was a little black earth containing bones, limpet-shells, and other refuse. Just within the entrance between the two portions of the wall there was a thin layer of sand (P in the section) a little below the surface. Below this layer of sand was a thick deposit of black earth (Q in the section) containing bones, shells, fragments of pottery, and other refuse from human habitation. This layer was found all over the cave except in the higher parts at the back. In general, the stratification as revealed by pits and trenches was as follows:—The surface humus, nowhere much over 6 inches deep, contained objects of comparatively modern times—wedges, bolts, hooks, nails, and other implements of iron, possibly part of the spoil of a wreck, together with fragments of common china ware and glass bottles. Below this, and about the level of the layer of sand already mentioned, was another thin stratum, again at its deepest about 6 inches thick, which yielded little except the broken bowl and broken stems of clay pipes of the well-known early type, and a small wooden disc. Below this again, and extending all over the rocky floor of the cave, came the layer of black earth containing shells, bones, potsherds, and other refuse from human habitation. This layer varied in thickness from about 2½ feet near the entrance, a foot to 6 inches near the middle of the cave, thinning rapidly further in. The shells are those of limpets, mussels, and periwinkles, all species common on the shore to-day. The bones from this deposit are described in the report annexed below. The other finds are:—

(1) Part of the shoulder and the ribbed end of the handle of a rounded glass bottle.¹

(2) Two small and one large fragment of fairly fine red-surfaced Romano-British ware.

¹ Like that shown in Curle, *A Roman Frontier Post*, p. 272, fig. 36.

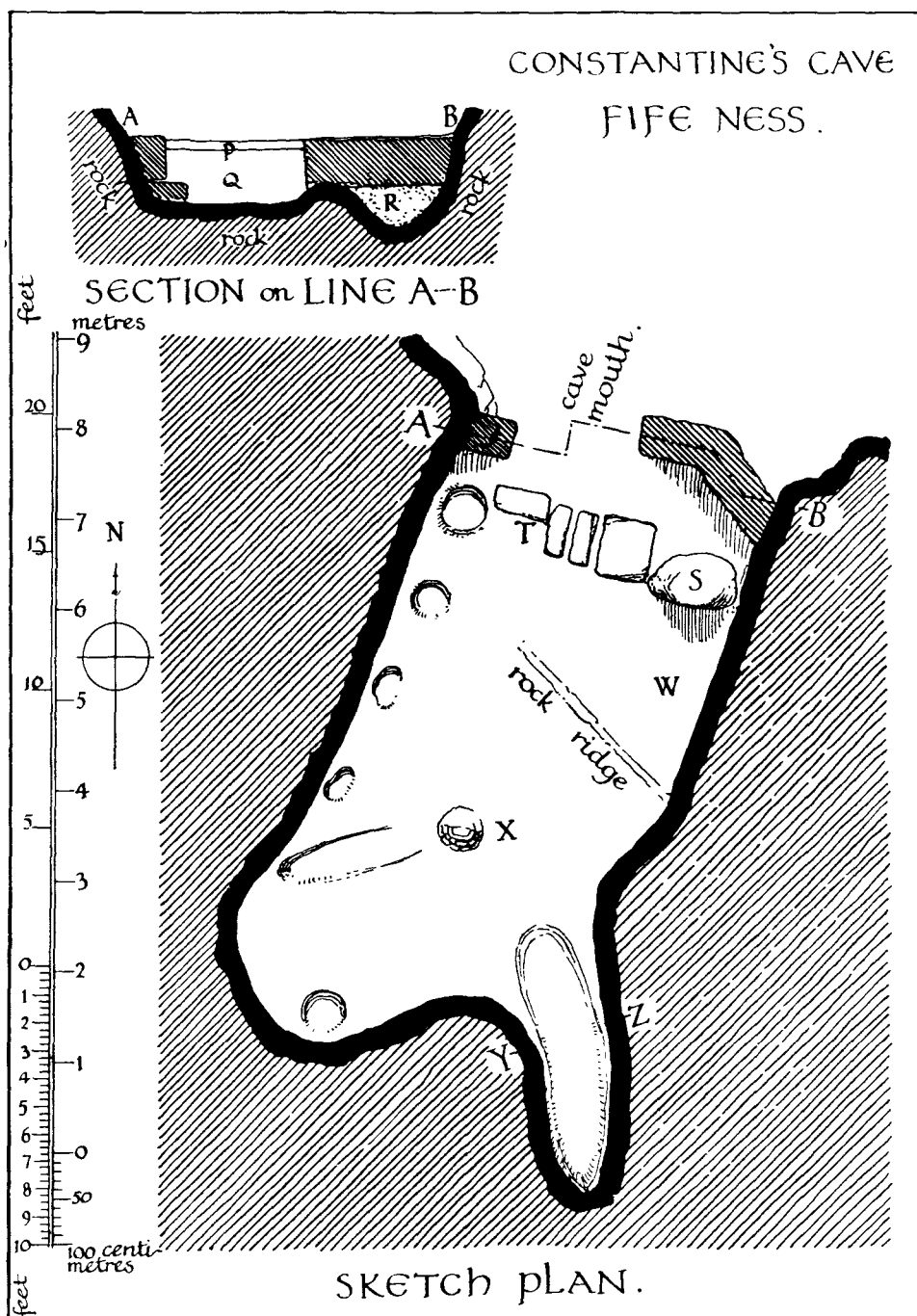


Fig. 6. Plan and section of Constantine's Cave.

(3) A great number of fragments of large earthenware Roman jars. These jars, when complete, must have stood about $2\frac{1}{2}$ to 3 feet high and were about 1 foot 8 inches in diameter. Each jar had a small neck with a broad lip, and running from the neck to the shoulder were two round vertical handles. The body was very wide and curved in sharply to a narrow base. The clay of which they are composed is coarse and not well baked. On the outside the jars are covered with a creamy slip. Only two jars could be partially restored with any certainty. The great majority of the sherds are so disintegrated as to make any attempt at restoration very difficult, but there would seem to have been at least three more such jars. On the handle of one of them is the stamp P M S A,¹ and another has V D incised on the surface near the bottom. This seems to have been done before the application of the slip. Such jars, or amphoræ, are not of Romano-British ware but were made in Spain, Italy, France, or Africa, and were carried all over the Roman Empire filled with wine, oil, or other southern produce.²

(4) A whetstone, 5 inches long; one flake and two small chips of flint; a triangular stone ($3\frac{1}{2}$ inches long) bored through the apex, perhaps a net-sinker; a small iron nail, $2\frac{1}{2}$ inches long.

Some of the deer horns and bones show traces of having been cut, worked, and used as implements.

Within the mortar-built wall, but at a lower level and resting on the rocky floor, was a large boulder (S on the plan) lying against the eastern wall of the cave with a row of four slabs (T on the plan) running west across the mouth. This appears to have formed the front wall of the cave during the period of its first habitation. Between the rock-ridge depicted in the plan and the boulder is a depression (W in the figure) in the floor where traces of fire were found. This hollow probably marks the site of the hearth. The inhabitants could sit on the rock-ridge, roast their food over the fire, and throw the refuse towards the outer wall, for it was here that the deposit of shells and bones was thickest.

To the south of the ridge the rocky floor gradually rises and the surface-deposit thins. In this region fragments of iron slag were very common. They centred about the spot marked X on the plan. In addition, at this place part of a hearth for smelting ironstone was found *in situ*. This consisted of half a stone basin made of whinstone, 3 inches deep, 4 inches thick, and 15 inches in diameter, set in the centre of two rough stone circles the interval between which was filled with clay. In addition to the slag, a large mass of metal was found beneath the broken basin mixed with slag and clay. Many fragments of burnt clay,

¹ Cf. the stamps P M S C and P M in *C. I. L.*, xii. 5683, Nos. 170, 171, 181, and xiii. Pt. 3, 10002, No. 331.

² Cf. Curle, *A Roman Frontier Post*, p. 268 and pl. lii.

partially coated with slag, were scattered around. Some of these are circular in section, with a kind of splayed foot which fits well over the lid of the stone basin. Thus they seem to have formed part of a circular superstructure, perhaps a cone of clay, erected on the stone basin so as to increase the draught and make a kind of primitive blast furnace. Such arrangements are known in primitive iron workings in India, Africa, and elsewhere. A cleft in the roof would form a natural chimney and free the cave from the smoke and fumes. The ore smelted may have been obtained from the ironstone found in the neighbourhood. Professor Irvine, who has kindly examined the slag and other specimens, reports as follows:—

“The specimens appear to be iron slags and resemble those produced in primitive attempts to prepare wrought iron. From the fact that they only display signs of fusion on the edges, while the fresh fractured faces are not characteristic of a fused slag, it would appear that the ‘bloom’ of spongy iron had been separated by hammering or squeezing. The appearance of the slags is strongly reminiscent of those obtained in primitive iron-working in Spain.” “From the shape of the specimen found beneath the hearth it is evident that the mass had originally been fused. The upper surface in particular is metallic in appearance and shows a bright metallic lustre when polished with a file. The under surface is considerably weathered and is easily detached. The specific gravity is notably high. Thus the specimen is not a genuine iron slag, but seems to consist, especially on the upper surface, essentially of reduced iron mixed with clay, which would naturally become attached to semi-fused iron.” A fragment of what seems to have been a stone hammer for treating the metal as suggested by Professor Irvine was found. The rough wrought iron thus made was possibly not worked on the spot, but traded with the Romano-British stations to the south. It is clear that the first inhabitants of the cave and the iron-working then carried on are dated by the pottery to the Roman period, probably the second century A.D.

The next inhabitation of the cave is marked by the mortar-built wall, numerous crosses¹ incised on the upper parts of the rocky walls, and the “Celtic” animals (fig. 7) cut in the rock at the points marked Y and Z on the plan. These rough attempts at animal representation are similar to those that occur at East Wemyss,² where they are found in conjunction with symbols that are common on the second class of the early sculptured monuments of Scotland. Thus they can be dated to the Celtic Period, or roughly to 800–1000 A.D.³ At this time the cave was perhaps used as

¹ Cf. Stuart, *Sculptured Stones*, ii. p. lxxxviii. pl. 29.

² Stuart, *op. cit.*, ii. p. xci, pls. 30–35; Romilly Allen, *op. cit.*, pp. 370–373, figs. 389, 390.

³ See Romilly Allen, *op. cit.*, p. cix.

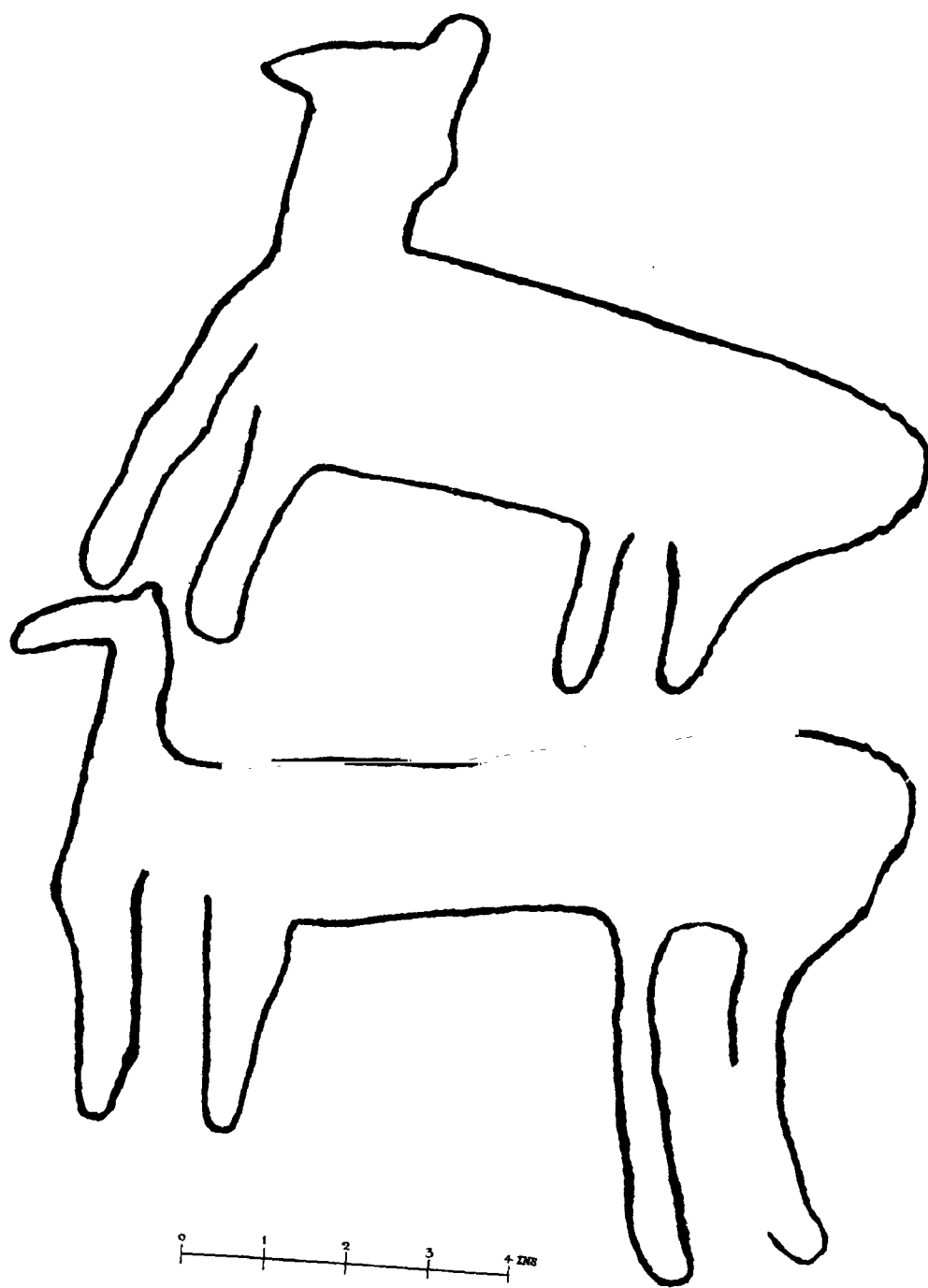


Fig. 7. Celtic animals incised in the rock.

a chapel or hermitage, as apparently was the case with the caves at Caiplie,¹ near Crail. Since that time the cave does not seem to have been regularly inhabited, though it was used for storing wreckage, for picnics, and as a shelter for tramps.

ARCHÆOLOGICAL RESULTS.

The excavation of these two caves, coupled with that of the caves at Archerfield in Haddington,² shows that during the Roman occupation the natives were dwelling in sea-worn caves lying on the 25-foot raised beach, which marks an emergence of land after the advent of Neolithic man in the country.

The remains of Roman pottery and the similarity of other finds, especially the bones, point to a uniformity of culture and date amongst the inhabitants of these caves. The occurrence of Roman pottery in Fife is interesting as showing how Roman influence spread in remote districts beyond the Antonine Wall, and away from the roads and camps in Perthshire and Forfarshire. The iron-working in Constantine's Cave, together with the abundance of Roman pottery there, suggests that the natives exchanged their local iron for pottery, glass, and other trade goods, for the local pottery of Scotland at that time was a very coarse, unrefined, hand-made ware.

After the Roman Period both the caves seem to have been inhabited in the Early Christian Period. The likeness of the crosses on the stone from Kinkell Cave to those on the sculptured stones, and the connection of the "Celtic" animal representation in Constantine's Cave with the symbols of the second class of sculptured stones, again show a uniformity in date and culture.

The East Neuk of Fife is closely connected with the earliest Christian legends of Scotland. There are the caves of St Regulus at St Andrews and of St Adrian at Caiplie, and the hermitage of St Adrian on the Isle of May. We may safely conclude that the two caves under consideration were used as chapels or hermitages by the early Christian missionaries who first reached the coast of Fife before Christianity had spread into the interior. It is unfortunate that the traditional cave of St Regulus, at St Andrews, is so much destroyed that there is nothing left to explore, but it is probable that if any other caves along the Fife coast are examined in the future the results will be found to agree with those obtained at the Kinkell Cave and Constantine's Cave, and that in like manner they will reveal two periods of occupation, one of the Roman and the other of the Early Christian Period.

¹ Stuart, *op. cit.*, ii. p. lxxxix, pl. 29.

² *Proc. Soc. Ant. Scot.*, 1908-1909, p. 243.

THE ANIMAL REMAINS FROM THE KINKELL CAVE, ST ANDREWS.

By Professor J. C. EWART, M.D., F.R.S., and JAMES RITCHIE, M.A., D.Sc.,
Royal Scottish Museum.

The animal remains were discovered in fairly distinct layers associated with signs of human habitation, of which they themselves are plain witnesses. These layers were separated by varying thickness of earth and rubble from the roof of the cave, indicating intervening periods of non-occupation of different lengths. As each layer was reached in the downward process of excavation the material was collected, and, unsorted, was sent to us, so that a tolerably complete examination of the kind and condition of the animal remains was made possible. We shall give here a summary of the material found in each layer from above downwards, drawing attention to any feature of interest, and shall follow this summary by a few general remarks on the collection as a whole.

SUMMARY OF ANIMAL REMAINS.

LAYER A:—Modern surface. No animal remains.

LAYER B:—Portion of a thin black layer varying from $1\frac{1}{2}$ to 3 feet below the modern floor. From this was obtained a very small quantity of bones and shells. The shells were not seen by us, but the bones represented:—

- (1) ROE DEER, *Capreolus capreolus* (Linn.). A single, much-weathered portion of a metatarsal bone.
- (2) OX, *Bos taurus* Linnæus. Three premolar teeth and an upper jaw bearing milk teeth.
- (3) HADDOCK, *Gadus eglefinus* Linn. Fragmentary bones of the skull.

LAYER C:—Portion of a very thin black band $1\frac{1}{2}$ to 3 feet below the floor of the cave. This contained only:—

- (1) RED DEER, *Cervus elaphus* Linn. A single spine of a dorsal vertebra.
- (2) OX. The splintered surface fragment of a femur.
- (3) PERIWINKLES, *Littorina littorea* (Linn.). Eight specimens.
- (4) DOG WHELK, *Purpura lapillus* (Linn.) (1).

LAYER D:—A layer 3 feet thick, the upper surface of which lay $1\frac{1}{2}$ feet below layer C. From this layer the majority of the animal remains were recovered. Owing to the depth of the layer it was divided into three sections—upper D, mid D, and lower D.

Upper D.—The collection consisted in the main of a multitude of small

fragments of bones. Thus there were great numbers of unidentifiable portions of ribs, vertebral processes, splinters of canon bones, and the like. Many of the bones showed signs of artificial splitting, and almost all the ribs, limb bones, and even jaws were broken across. The animals represented were:—

- (1) RED DEER. The os calcis of a large specimen.
- (2) SHORT-HORNED CELTIC OX, *Bos taurus, longifrons* of Owen. Many bones, most striking amongst them being the large proportion of remains of young animals. Two lower jaws, artificially broken across, bore milk teeth, and one milk-dentition molar was present; while several limb bones were those of foetal animals.
- (3) TURBARY SHEEP, *Ovis aries* var. *palustris* Rütimeyer. Eight recognisable bones, including a metatarsal, the length and slenderness of which indicated the above variety of sheep.
- (4) (?) GOAT. A single broken mandible indicates somewhat doubtfully the presence of this species.

Mid D.—A large number of bones were found here, practically all of which were broken across or split. Broken ribs and splintered canon bones were particularly common; and that the fracturing was due to human agency was shown by the presence of many blow-marks made by a sharp-edged tool, as well as by the occurrence of a possible implement. Amongst the bones were two charred fragments of pine branches.

- (1) PIG, *Sus scrofa* Linn. Three lower jaws, one of a very young animal.
- (2) RED DEER. Amongst the recognisable bones was a phalanx artificially split, and the upper portion of an ulna, the olecranon process of which had been so split as to form an "awl"-like instrument (fig. 8, No. 1).
- (3) CELTIC SHORT-HORNED OX. Most of the bones were those of young animals; one lower jaw contained milk teeth; one adult canon bone bore tool marks close to where it was split, and four limb bones had the ends chewed off, probably by a dog or wolf.
- (4) TURBARY SHEEP. A dozen recognisable bones.

Lower D.—A large number of bones, representing greater diversity of species than those from any other layer.

- (1) DOG or WOLF, *Canis* sp. Represented by a complete femur badly dented in the middle, and the proximal end of a humerus. The complete bone is rather longer than that of a normal wolf, and from this fact and certain details of structure we are

inclined to think it must have belonged to a moderately large dog.



Fig. 8. Bone implements from Kinkell Cave and Constantine's Cave.

No. 1. Red Deer. Olecranon process of ulna with shaft split into awl-like shape. *Kinkell Cave*.

Nos. 2 and 3. Scoop-like "diggers" formed from lateral processes of lumbar vertebrae of Short-horned Celtic Ox. *Kinkell Cave*.

No. 4. Limb-bone of Red Deer, split, and worn at the point as if used chisel-wise. *Constantine's Cave*.

- (2) WILD BOAR. Part of a lower jaw with incisor and two fragments of a large boar's tusk, as well as four lower jaws and one upper jaw all bearing milk teeth.
- (3) RED DEER. Fragments of ribs probably of this species.

- ... (4) ROE DEER. A fragmentary metatarsal obviously used as a chisel-like implement (fig. 9, No. 1), a description of which will be given in the "General Remarks" following.

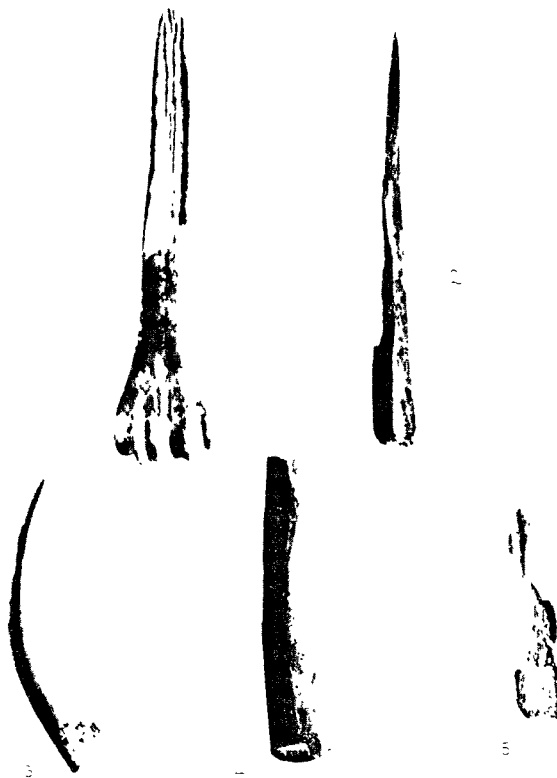


Fig. 9. Bone implements from Kinkell Cave and Constantine's Cave.

- No. 1. Chisel formed by the split and sharpened canon bone of Roe Deer. *Kinkell Cave.*
 No. 2. Unworn splint of bone, probably a borer in the making. *Constantine's Cave.*
 No. 3. Worked tip of Red Deer antler tine. *Constantine's Cave.*
 No. 4. Cylindrical dressed section of tine of Red Deer antler, so-called "knife-handle." *Constantine's Cave.*
 No. 5. Similar to No. 4, but showing traces of burning. *Constantine's Cave.*

- (5) **SHORT-HORNED CELTIC OX.** Very many bones both of adult and young (milk dentition) animals. Particular interest attaches to the core of a short conical horn typical of this variety of ox, and two lateral processes which have been artificially detached from lumbar vertebræ, and may have been used as spuds or trowels for digging burrowing mollusca from sand (fig. 8. Nos. 2 and 3).
- (6) **TURBARY SHEEP.** Many bones of adults, and young with milk dentition.
- (7) **WATER VOLE, *Arvicola amphibius* (Linn.).** A single right incisor from a lower jaw, which appears to have belonged to this species.
- Several skull bones of fishes were found. They represented:—
- (8) **COD-FISH, *Gadus morrhua*,** and
- (9) **LING, *Molva vulgaris*.**

Invertebrates were represented by the following Mollusca and Crustacea:—

- (10) **LIMPETS, *Patella vulgata*,** many (27).
- (11) **PERIWINKLES, *Littorina littorea*,** very many (124).
- (12) *Cyprina islandica* (1).
- (13) A single chela of the **EDIBLE CRAB, *Cancer pagurus*.**

LAYER E:—A thin layer a short distance below the base of layer D contained only:—

- (1) **WILD BOAR.** Mandible and fragment of tusk.
- (2) **TURBARY SHEEP.** Two limb bones.

LAYER F:—A thin layer a short distance below layer E contained only:—

- (1) **WILD BOAR.** Fragment of tusk.
- (2) An undeterminable fragment of a bird's tibiotarsus.
- (3) Many **LIMPETS, *Patella vulgata* (38),** and several **PERIWINKLES, *Littorina littorea* (5).**

GENERAL REMARKS.

As compared with most of the early Scottish cave settlements found near the seashore, Kinkell Cave shows a scarcity of fish remains. Apparently the settlers depended rather on their hunting than on their fishing for food supply. From the preponderance of the bones of the Celtic Short-horned Ox and of the Turbary Sheep, neither indigenous to the country, it is plain that their staple supply was derived from a domesticated stock. But the animals seem to have been more or less wild, for a large proportion of the remains are those of young animals bearing milk dentition, which would naturally fall more readily to the

hunter than wary and more active adults. That the hunters were possessed of some skill, however, is shown by the presence of remains of Red and Roe Deer and of the Wild Boar. Apart from the occurrence of a couple of bones, the presence of Dogs or Wolves is evidenced by the considerable number of limb bones the succulent ends of which have been chewed off.

As regards the distribution of the bones in the various layers it is curious that the Wild Boar is represented only in the lower strata; and it is certainly remarkable that in the Kinkell Cave no remains of the horse have been found, although in Roman times, as the Newstead relics



Fig. 10. Bone "limpet" wedge (nat. size), Kinkell Cave.

show, that animal was abundant in South Scotland. From the actual number of bones obtained, layer D marks the main period of settlement.

The cave has furnished few examples of implements, and yet the intense fracturing of the bones, too minute to be accounted for by efforts to obtain marrow, suggests endeavours to obtain splints of bone which could be utilised as borers or points for various purposes. The most definite implement is a Roe Deer metatarsal bone cut into a chisel-shape (fig. 9, No. 1). The distal articular end of this bone is complete, but the shank has been split slantwise and the end has been cut or rubbed down into a broad edge which appears to have been hardened by fire. The instrument has been smoothed by much usage. It bears a close resemblance to the "bone chisel," found in a crannog at Lochspouts and figured in Munro's *Ancient Scottish Lake Dwellings*, fig. 172, p. 175. Two lateral processes artificially cut from lumbar vertebræ of an Ox bear striæ (fig. 8, Nos. 2 and 3), and closely resemble a similar instrument which we (J. R.) have recently described from a supposed Romano-British settle-

ment in Bute.¹ Such flattened and sharp-edged implements may have been used as spuds or trowels for the capture of molluscs, such as *Mya arenaria*, which burrow in sand, and which usually formed a goodly proportion of the food supply. Another possible instrument is the ulna of a Red Deer (fig. 8, No. 1), the shaft of which has been split so as to form an exceedingly sharp point. It suggests an awl-like implement, somewhat like that from a crannog at Lockie figured by Munro (*op. cit.* fig. 79, p. 113), but shows no definite signs of use.

Lastly, an unidentifiable fragment of bone from layer D bears clear marks of cutting, the resulting form being a well-shaped wedge, the scoop end of which is rounded (fig. 10). The use of such a fragment is conjectural, but its shape suggests the stone and bone limpet-wedges or scoops which were described by Mr Bishop in the last volume of the *Proceedings* of this Society, from the prehistoric shell-mounds at Oronsay. The fact that limpets were common in the Kinkell Cave lends strength to the suggestion, and at any rate attention may be drawn to the similarity of a definite implement found on the west and east coasts of Scotland.

THE ANIMAL REMAINS FROM CONSTANTINE'S CAVE, FIFE NESS.

By JAMES RITCHIE, M.A., D.Sc., Royal Scottish Museum.

Traces of the animal life of early times were found in two areas of Constantine's Cave. A few "bones, limpet shells, and other refuse" lay amongst a little black earth at the bottom of a pot-hole, underneath a thick layer of sand near the mouth of the cave. This small collection I have not seen. The main mass of material, however, was associated with many relics of human habitation in a definite stratum, 2½ feet thick at the entrance of the cave and gradually tailing out towards the innermost recesses. The top of the stratum lay about a foot beneath the modern surface. The layer represents a settlement which must have extended over a considerable period of time, and, as the following summary shows, reveals a much greater variety of animal life than do the various strata of the neighbouring Kinkell Cave. Further, Professor Jehu informs me that a quantity of more fragmentary bones have not been submitted to me, so that some species may yet have to be added to the list.

Following the plan adopted in discussing the Kinkell animals, I shall give first a summary of the actual finds, pointing out their more interesting features, and shall add thereafter some general remarks on the collection and the bone implements it contains. I ought to add that if

¹ See *Trans. Buteshire Nat. Hist. Soc.* for 1915.

some of the scientific designations in the following list appear unfamiliar it is because I have followed the nomenclature of G. S. Miller's *British Museum Catalogue of the Land Mammals of Western Europe*, 1912, the most recent authoritative work.

SUMMARY OF ANIMAL REMAINS.

MAMMALS.

- (1) WILD CAT, *Felis silvestris* Schreber. Two limb bones, a radius and fragmentary tibia. Whether or not this early individual belonged to the present race of British Wild Cat, known as *Felis silvestris grampia* Miller, it is impossible from these bones to say.
- (2) BADGER, *Meles meles* (Linnæus). A single ulna.
- (3) GREY SEAL, *Halichærus gryphus* (Fab.). Two lumbar vertebræ of this large Seal were found. The species, which is common in the Outer Hebrides and among the Orkney and Shetland Islands, is, at the present day, a rare straggler to the east coast of Scotland. Many examples, however, were recorded from the mouth of the Tay in the 'sixties of last century.
- (4) WHALE, perhaps PILOT WHALE,¹ *Globiocephalus melas* (Trail). The centrum of a large dorsal vertebra which most likely belonged to the above species. Some surfaces show artificial dints made by an edged instrument.
- (5) WILD BOAR, *Sus scrofa* Linnæus. Four mandibles and one maxilla of large size, and part of a pelvic girdle.
- (6) RED DEER, *Cervus elaphus* Linnæus. A large number of bones representing Red Deer considerably larger than the Scottish Red Deer of to-day. One limb bone (tibia) shows traces of teeth or implements. There is a large proportion of the tips and tines of antlers and a single base 5 inches in circumference. Most of the fourteen antler fragments bear marks of artificial cutting and dressing, and a few definite implements (fig. 8, No. 4, and fig. 9, Nos. 2-4) shall be described in the general remarks following.
- (7) SHORT-HORNED CELTIC OX, *Bos taurus longifrons* Owen. Many bones partly of adults and partly of young with milk dentition. The shank of one young ulna has been split so as to form a point, and may have been used as borer similar to that in fig. 8, No. 1.

¹ The bone was identified by Mr E. T. Newton, F.R.S., whose kindly assistance has added considerably to the value of this list.

- (8) TURBARY SHEEP, *Ovis aries palustris* Rütimeyer. Many bones.
- (9) HORSE. Two molar teeth which Professor J. Cossar Ewart has identified as the "4th upper molar and 1st lower molar of a pony of the 'Forest' type, about 12 hands high." Also part of a pelvic girdle.
- (10) RABBIT, *Oryctolagus cuniculus* (Linnæus). Many bones, some of adult and some of young individuals. The adult bones seem to indicate specimens of a smaller size than is usual to-day.

BIRDS.

- (11) SHAG, *Phalacrocorax graculus* Linn. Many bones forming the greater portions of the skeletons of at least two specimens.
- (12) GOOSE,¹ *Anser* sp. A single "merrythought" (united clavicles).
- (13) GULL, *Larus ?argentatus*. A single tibia larger than that of Common Gull and slightly less than that of Herring Gull, possibly representing an immature specimen of the latter species.
- (14) RED-THROATED DIVER,¹ *Colymbus septentrionalis*+. A single radius.

FISH.

- (15) GADOID FISH, probably Haddock, *Gadus æglefinus* Linn. Many bones of the skull of a specimen about 4 feet long.

CRUSTACEA.

- (16) EDIBLE CRAB, *Cancer pagurus* Linn. Many "pincers" from the large claws.

MOLLUSCA.

- (17) LIMPETS, *Patella vulgata* Linn. Many large specimens.
- (18) PERIWINKLES, *Littorina littorea* (Linn.). More numerous than the limpets.
- (19) MUSSELS, *Mytilus edulis* Linn. Two fragments.
- (20) *Cyprina islandica* (Linn.). One fragment.
- (21) *Lutraria elliptica* Lamarck. One fragment.

GENERAL REMARKS.

Of the many species of animals represented in Constantine's Cave two—the Wild Cat and Badger—may be dismissed as chance wanderers which possibly sought shelter there during some period when the cave was forsaken by its human inhabitants. The remainder of the bones

¹ Determined by Mr E. T. Newton, F.R.S.

tell clearly of human occupation, for they not only represent animals which lived in the open, and must have been brought thither by outside agency, but they also bear cuts and dints evidently the work of man's implements. They show that the Constantine Cave dwellers enjoyed much greater variety of fare than did the inhabitants of the Kinkell Cave; but that they also depended for their main food supply on their semi-domesticated stock. Judging from the numbers of bones, the Short-horned Celtic Ox, the Red Deer, and the Turbary Sheep were the most frequent victims, the Red Deer being a specially desirable prey on account of the facility with which its bones and antlers could be manufactured into simple and durable implements. That when opportunity offered Whales and Seals were used as food is shown not only by the occurrence of their remains in Constantine's Cave, but by the evidences of the brochs and by the association of deer-horn implements with whales' skeletons in the Carse of Stirling. We have already pointed out in discussing the Kinkell Cave that in Roman times Horses were common in South Scotland, but the presence here of only a few bones, in all likelihood belonging to a single individual, and the absence of any trace in Kinkell Cave, would indicate that horses, even of the native "forest" type, seldom found their way into the possession of such as the cave-dwellers.

The remains of many Edible Crabs were found, and, since this species does not as a rule occur in tidal areas but frequents deeper water, we must assume that the settlers possessed some means of trapping or hooking marine animals beyond the reach of unaided man. It may be that they employed the simple method of irritating the crabs with a long pole. This the crustaceans would at once seize with their pincers and, holding fast, would be drawn by it to the surface—a primitive method still in use during last century in the Firth of Clyde.

IMPLEMENTS.

Sparse but clear evidence of the manufacture of implements from animal remains is afforded by Constantine's Cave. Red Deer antlers appear to have been the favourite material. Most of the many fragments of antlers recovered bear marks of cutting. Sometimes the sharp tip of a tine was cut off to act as a borer (fig. 9, No. 3), or again a segment about 2 or 3 inches long was excised from a tine by cutting off both ends. The latter implements show careful dressing, the truncated ends of the cylinder being neatly squared off, and the body showing in one case traces of burning and in the other many marks of external trimming with a sharp instrument (fig. 9, Nos. 4 and 5). These cylinders exactly

resemble in appearance the "knife-handle" found in a lake-dwelling at Buston in Ayrshire, and figured in Munro's *Ancient Scottish Lake Dwellings* (fig. 222, p. 220); but in the present case they can scarcely have been used as knife-handles, since one is quite solid and the other is penetrated by a hole only sufficiently large to allow of the passage of a thin wire.

Other possible implements are a long, fine, and exceedingly sharp-pointed splint probably of a canon bone (fig. 9, No. 2); the pointed ulna of a young Ox, which may have been used as a borer; and a split length of limb bone of Red Deer (fig. 8, No. 4), worn at the point, which appears to have been used as a chisel or some such instrument.

III

THE MOST ANCIENT BRIDGES IN BRITAIN.¹

BY HARRY R. G. INGLIS, F.S.A. SCOT.

NATIONAL CHARACTERISTICS.

A study of bridge-building reveals to us the interesting fact that nationality plays an important part in the development and construction of these useful means of communication. The Celt and the Scandinavian seem to have been almost exclusively builders of wooden bridges, while it is the Latin race to whom we appear to be indebted for all the old stone bridges, just as it is to the Anglo-Saxon race in modern times that we owe the great iron bridges that span our rivers.

EARLY METHODS OF CROSSING STREAMS.

In order to grasp the early methods of crossing rivers it is only necessary to take up philology to find that in Greek, Sanscrit, Hebrew, and Arabic the word for bridge is practically the same now as a dam or barrier of some kind, and we thus assume that stepping-stones were actually the earliest form of bridge or method of crossing a river. In several places in England, notably at Ilkley (fig. 1) and Morpeth, shaped stones are employed in series for the purpose of crossing the wide rivers; and these nerve-trying steps present a most ingenious and inexpensive substitute for a bridge, such as is rarely to be observed in Scotland.

The English word bridge originally came from the Scandinavian *brycg*, the gangway that was used in the Viking ships. It is still used on board ship, and reveals to us the essentially wooden character of the early bridges in this country and the origin of the application of the name.

It is not easy to find what was the design of these early wooden bridges, but a wooden bridge now existing in Formosa probably shows the most primitive form of bridge. The poles driven deep into the river bed, a cross beam tied to the ends and the planks laid between the cross beams, were all that was required to complete a bridge across almost any stream, and this gives us the form probably almost universal in countries where wood was abundant.

¹ Previous papers on the same subject: "The Ancient Bridges of Scotland," January 1912; "The Roads and Bridges in Early Scottish History," February 1913.

EARLY STONE BRIDGES.

In regard to stone bridges, the permanent relics of Roman bridges do not extend much further north than Lyons—the North of France being apparently destitute of these structures. In England, although the course of the Roman roads brings them across large rivers, there is no bridge left belonging to the Roman period, although the founda-



Fig. 1. Stepping-stones at Ilkley (Yorks.).

tions of piers have been uncovered by excavation, but whether or not they carried arches is unknown.

In the Antonine Itinerary there are three places in England where the root "pont" comes in in regard to the Roman stations—Pontibus near Staines, Duroliponte (apparently Godmanchester), and Ad Pontem beside Newark; whether the Pons Ælii of the Notitia was across the Tyne or Jesmond Dene is a problem not yet solved, but in all these cases there is no Roman bridge now at the places named. The chief relic, however, of the remains of a Roman structure is on the Roman Wall between Newcastle and Carlisle, at Chollerford, where the Wall crosses the river North Tyne, and a series of heavy piers and abutments show what was clearly at one time a barrage.

In Scotland there are no Roman bridges left on such highways as are

generally recognised to be Roman, and no definite investigations have yet been made as to how the chief rivers were crossed.

MEDIÆVAL WOODEN BRIDGES.

In mediæval times in Britain all the early structures seem to have been of wood, and the records of history all seem to point to the same conclusion. In 1008 the wooden bridge over the Thames at London was torn down by the Danes. In 1066, at the battle of Stamford Bridge (in Yorkshire), the decisive stroke was caused by a warrior in a boat thrusting up his spear from below and killing the valiant defender of the bridge. In 1296 Wallace caused the bridge at Stirling to be cut at a critical moment, and thus secured the defeat of his adversaries. In 1322, at Borough Bridge, the Earl of Hereford was killed by a spear thrust from below between the planks of the bridge. Seeing the references to wooden bridges are so universal in history, it is interesting to find that an old chronicler (Stow) preserves the statement that Bow Bridge near London, built by Matilda in 1110, was the first *stone* bridge in England, and that it got its name from the shape of the arch. The Matilda or Queen Maud referred to was the wife of Henry I. of England and daughter of Malcolm Canmore of Scotland and Queen Margaret. Whether the statement is accurate or not, it at least shows that the early chroniclers were fully aware that stone bridges were of no great antiquity, and thought the fact worth recording.

EARLY PICTURES.

In order to ascertain when the old wooden bridges were replaced by those of stone, historical works must be scrutinised for references; and illustrations, such as early prints, pictures, or seals, must be sought for and examined. If such be found representing any existing ancient bridge, a careful comparison of all its details must be made to identify the remaining parts of the original structure. But in vain do we scan the old paintings and pictures for enlightenment—they are almost exclusively concerned with ecclesiastical objects—and we have to fall back upon what may be called accidental illustrations, for crude representations of the appearance of the ancient bridges. In the pictures in the chief galleries of Europe, bridges—except in the dim background—are conspicuous by their absence; there is, however, in the British Museum a sixteenth-century illuminated manuscript with a picture of London Bridge, which, compared with the later eighteenth-century drawings, shows that at the latter date great changes had taken place.

This picture represents London Bridge with its chapel, as well as a

number of houses erected upon it, and there may be observed clear traces of the ribs below the arches, which do not appear on the later pictures. It is therefore fairly evident that, in the long course of its existence, arch by arch London Bridge had to be rebuilt and repaired so much, that in the end there was very little left of the original structure.

In Scotland the earliest picture with a representation of a bridge appears to be a thumbnail sketch of the long washed-away Perth Bridge, drawn on one of Timothy Pont's manuscript maps (in the Advocates' Library) about 1615. The name of the bridge is not given, but, as there are eleven arches in the sketch, and as Perth Bridge was known to have eleven arches, the inference is justifiable.

REPRESENTATION ON BURGH SEALS.

Though pictorial representations of bridges are few, a number of Burghs use a bridge as an emblem on their seals, and thus we have Barnstaple, Bideford, Bridgwater, Cambridge, Colchester, Maidstone, Rochester, and Stirling giving us early representations of their local bridges. In only two cases, Rochester and Bridgwater, do we see the design of a wooden bridge. The seal of Colchester, supposed to go back as far as 1189, depicts a castle upon three arches over a river, with a fish below each arch; but it is extremely doubtful if it is intended to be a representation of a bridge, as the fish refers to the fishery with which the town was closely connected, and the curves may be merely a species of arcading.

Barnstaple Burgh seal, representing a bridge, dates back to 1303.

Bideford, with its long bridge of twenty-four arches, was one of the very early examples of a public benefaction, as the money for its construction was collected from all over Devonshire *circa* 1330.

The burgh of Cambridge did not have, at first, a seal, but the Mayor had one in use showing a four-arched bridge, and it is attached to a document dated 1352. The burgh seal was made in 1423—also showing a four-arched bridge; and in 1471 a new Mayor's seal was in use varying slightly from the previous one.¹

Rochester, like Barnstaple, had a very long bridge, which, being of wood, was destroyed by fire in 1264, and swept away in 1281. Through the instrumentality of Lord Cobham, a Bridge Trust was founded in 1398, the seal of which, used in 1420 (fig. 2), apparently furnishes a representation of the wooden bridge that had been destroyed in 1281. This seal disappeared in 1804, and when a duplicate was cut the original came to light in the British Museum Collection.

¹ Mr T. D. Atkinson, *Camb. Antiq. Soc.*, vol. x.

Another seal with a picture of a bridge on it is that of the Cobham College, but it is of no definite value, as the bridge thereon merely signifies the two members of the Rochester Bridge Trust who were elected to Lord Cobham's College Trust. (The Cobham is the name of the person and not the village of Cobham in Surrey.) The seal now used was cut in 1806, as the original seal of 1598 disappeared at the same time as the Rochester seal; but it represents generally the original, though the numerals are in more modern lettering.

The seal of Maidstone, *circa* 1550, is also of some interest, but the picture of the bridge shown on it is insufficiently detailed to be of any service.



Fig. 2. Seal of Rochester Bridge Trust.

By far the finest of all the seals showing bridges is that of the burgh of Stirling (fig. 3), where within a 3-inch medallion we have a wonderful picture of men crossing a bridge. A specimen of this seal is known to have been attached to a document of 1296; but with its clear indication of wooden piers and stone overhanging parapets it presents such a reversal of all bridge design that as a representation of the actual bridge it is manifestly unsatisfactory.

Pontefract has also a seal with a bridge on it, but the design is comparatively modern, and appears to be connected with the supposed origin of the name, implying a broken bridge. It is somewhat strange that no one has drawn attention to the fact that there is no river at Pontefract, nor a bridge of any size within three miles of it, the nearest being at Ferrybridge. There is a story that the bridge at Ferrybridge broke down while the Archbishop of York was crossing it in the twelfth century, and for this reason the name "Kirkby" was changed to "Pontefract"; but it is hardly credible that the name of a town three

miles away should be changed by this incident. The ancient seal does not exhibit a broken bridge.

Grampound, a small market-town in Cornwall, has a seal showing



Fig. 3. Ancient Seal of Burgh of Stirling.

a stone bridge of two arches, but it has no appearance of antiquity in its design.

EARLIEST TYPES OF BRIDGE.

A study of the earliest of these seals has made it fairly clear that prior to the use of the pointed arch the earliest type of bridge had an almost semi-circular span springing fairly high above the river bed, and a search in the vicinity of some of our earliest ecclesiastical buildings has resulted in the discovery, at Fountains Abbey in Yorkshire, of two bridges, one with the circular span and the small arch of the earliest period (fig. 4), and the other with the later or pointed style. Judging from the later internal alterations to the Abbey, it is possible to relegate the first bridge to the thirteenth century with very little doubt as to the accuracy of the date, and it may thus be regarded as a typical bridge of the very earliest period. In England, as in Scotland, we see the same ideas of safety weighing in the minds of the early bridge-builders, and arches of small span appear in all the very early structures in England.

Another bridge of the same type as the earlier bridge at Fountains, but somewhat larger, is Kilgrim Bridge in Yorkshire, beside Jervaulx Abbey : but in connection with it there is a remarkably ingenious raised footway on small arches on the embankment at the northern approach to the bridge, so that, in the event of the river rising even to the level

of the crown of the arch, foot passengers could still cross the valley and reach the bridge.

The old London Bridge was an excellent example of early builder's work. Its history is typical of the vicissitudes of most ancient bridges. In 994 its destruction is an incident in a fight with the Danes; in 1008 it again suffered demolition; and in 1091 it was swept away. In 1136 its successor was destroyed by fire, and, to take its place, in 1163 another bridge was built. The great stone bridge was begun in 1176 and com-



Fig. 4. Old Bridge at Fountains Abbey (Yorks.), 12 feet span.

pleted in 1209. Five arches of this bridge fell in 1282 and two in 1437. In 1504 six houses on it took fire; while in the great fire in 1632¹ the buildings on the northern end were burned. Extensive repairs were executed on it from 1757 to 1770, and finally it was replaced by the new London Bridge and taken down in 1831. Structurally the chief point to be noted about London Bridge is that, though the bridge was 926 feet in length, its twenty arches were on the average only 30 feet span—a fact which appears to demonstrate emphatically the limit of size of span of that early period. If a larger span had appeared feasible to the builder, a much clearer waterway would have resulted, and it is the limited span of this and so many others of the same period that makes it extremely unlikely that other bridges attributed to near the same period should have arches of nearly 100 feet span.

¹ These were not rebuilt, so the bridge did not suffer in the greater fire of 1666.

THE TRIANGULAR BRIDGE.

There is one example of this early class of bridge which deserves special notice, because it is referred to in many books as the oldest bridge in England—the triangular bridge at Crowland (figs. 5-6), near Peterborough. It stands at the end of a broad main street of the little town, close to a house at the cross roads, with no river near it. It is explained that two rivers once met at this point, and that the third arch carried the conjoined streams away to the sea. But if one looks at the position of the houses, the explanation does not seem adequate, because any stream or drain—for it is flat fen country—that came down could be more easily crossed by a plank, and the steepness and narrowness of the access do not suggest that it was for regular use. One is therefore forced to the conclusion that it is a memorial of some kind—possibly a novel form of town-cross or observation point from which edicts could be read in connection with the adjoining Abbey: and in this respect the carved statue at the one end clearly suggests clerical influence. Although the triangular bridge is said to be mentioned in A.D. 863, the present one is generally thought to have been erected about 1300, and it owes its excellent state of preservation to the fact that no wheeled traffic passes over it.

THE RELATIVE AGE OF BRIDGES.

When we come to look closely into the question of the age of many of these more ancient bridges, we are greatly handicapped by the fact that, though references to them occur in early documents, there is no certainty as to whether the present bridge is referred to or not, while some of the statements have to be accepted with hesitation. For instance, Leyland mentions that the bridge at Barnard Castle had three arches in 1540, but it has now only two, and we have to take the statement as fact, making the mental reservation that Pierce Bridge, a little further down the river, has three arches, and some confusion might have occurred.

But when we come to tabulate the dimensions of a fairly large group of ancient bridges we find a remarkable coincidence in the almost uniform size of the span of the arches in the early periods, and one might say that their relative age appears to be a matter almost entirely determinable by the length of the span. Taking a representative selection, it is remarkable in how many cases a span of 30 feet is used, and these seem to belong to the period preceding 1350. It will also be observed that a 32-feet arch appears to be the limit of the span in the

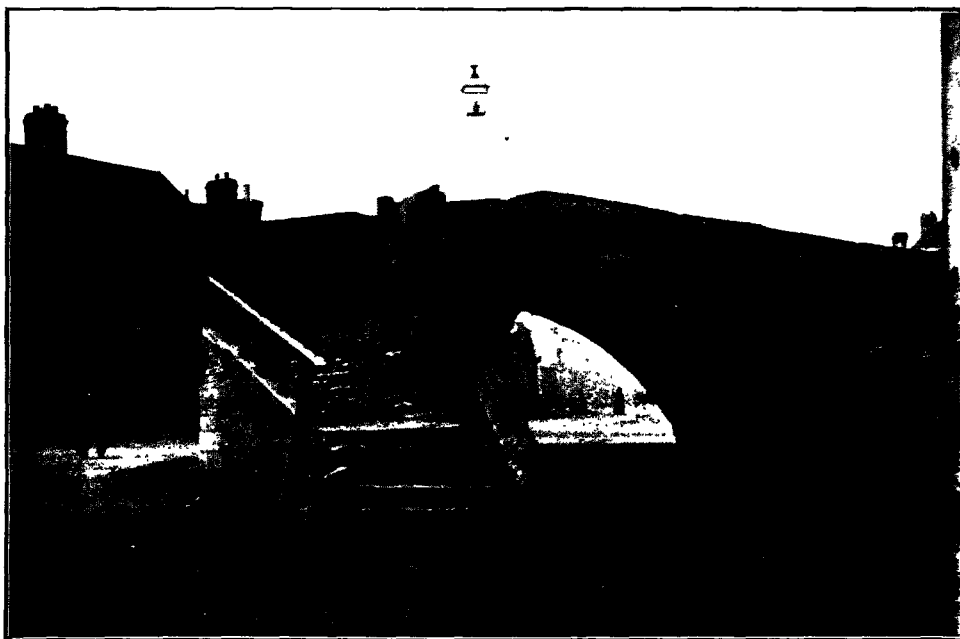


Fig. 5. Crowland Triangular Bridge (near Peterborough).

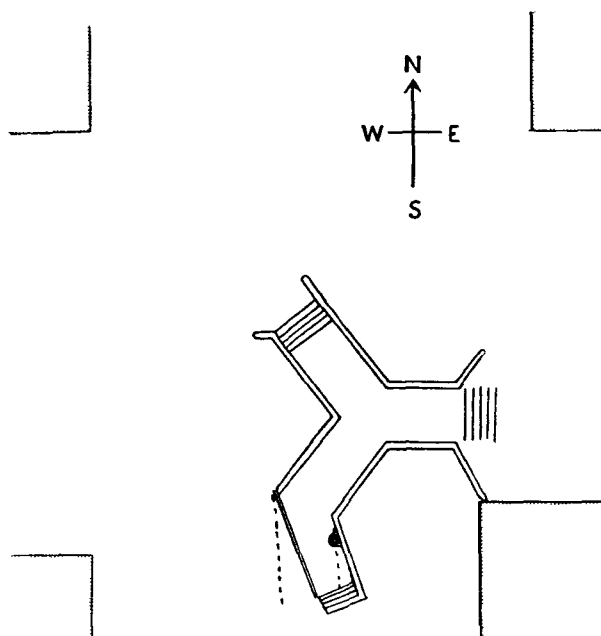


Fig. 6. Plan of Crowland Bridge and its relation to the intersecting streets.

early periods, following which there seems to be a gap, for the next spans are all over 37 feet. The difference between these two groups is so marked, that one naturally feels that there must have been some long period of inactivity in bridge-building, for it is incredible that such a remarkable circumstance should merely be chance. Looking at the preponderance of small-arched bridges, one turns with some scepticism to the fourteenth-century dates assigned to spans of 60 and 90 feet, when all the known facts point to a later period of design.



Fig. 7. Elvet Bridge (Durham), 27 feet span.

One of the most striking of such instances is at Durham, where, on the river Wear, at the one side of the cathedral city, Elvet Bridge (fig. 7) (thirteenth century) has a multiplicity of arches of about 27 feet span, whereas the Framwellgate Bridge (fourteenth century), on the other side, and across the same river, has only two arches of 85 feet span. The river is the same width, the two bridges are but half a mile apart, and yet they are supposed to have been built within a century of one another. The explanation probably lies in the fact that piers have been removed in the Framwellgate Bridge and the spans increased. The clearest example of this type of alteration is Eddisford Bridge, near Clitheroe, where a 60-foot span in the middle of a series of 25-foot arches reveals that one pier has been cleared away and two arches have at some period been made into one big span. The position

of the missing pier is clearly seen in the river bed, where a rock shows the spot on which it stood.

The list of bridges here given, though consisting almost entirely of those in Northumberland, Durham, Cumberland, Westmorland, Yorkshire, and Lancashire (the lists of which are practically complete), contains a few others in various parts of England.

Bridge.	Spans.	Remarks.
	feet.	
Fountains Abbey (3), Yorks.	10½-12	
Fountains (Mill) (2), Yorks.	20	
Crowland	16	913-1300 reputed.
Kilgrim (4), Yorks.	21	
Ripon (9), Yorks.	21	not ribbed.
Eddisford (4), Lanc.	24½	
Elvet (78), Durham	27	1225 reputed.
Eaglescliffe (6), Durham-Yorks.	30	1350-1400 reputed.
Eamont (3), Cumb.-Westm.	30	
Otley (9), Yorks.	30	1673.
London	30	1209 known.
Wakefield (9), Yorks.	30	1340 reputed.
St Ives, Hunts (6)	22-30	
Warcop (3), Westm.	30	
Kildwick (4), Yorks.	19½, 30, 34	1330 reputed.
Sunderland (4), Durham	31½	before 1346.
Wilton (Ross), (6)	28-32	
Monno, Monmouth (3)	27½-32	
Paythorn (2-5), Lanc.	32	
Chester New (4), Durham	29-32	<i>circ.</i> 1350.
Hereford (6)	27-32	
Settle (2), Yorks.	37½-40	
Wensley (4), Yorks.	37	<i>circ.</i> 1340.
Croft (7), Yorks.-Durham	38	1673: dated stone.
Cotherstone (1), Yorks.	40	
Topcliffe (2), Yorks.	48	
Devil's (3), Westm.	55	1633: dated stone.
Barnard Castle (2), Yorks.-Durham	45-57	1596: dated stone.
Warkworth (2), Northd.	60	1379 reputed.
Borobridge (3), Yorks.	54-60	
Framwellgate (2), Durham	85	1125, rebuilt <i>circ.</i> 1390.
Twizell (1), Northd.	90	1570 reputed.
Bishop Auckland (2), Durham	90, 98	1388 reputed, no ribs.

The number of arches is shown in brackets.

The above list consists of the bridges at present existing with ribbed arches, and the measurements are those of the spans which clearly show antiquity. Eaglescliffe Bridge, for instance, has larger spans than that given, but they are not ribbed and are clearly of a totally different period; Hereford (fig. 8) also displays almost every conceivable type of arch, but the ribbed arch is of the dimensions given.

In addition to these bridges, a number have been removed, the most important of which were the one of ten arches at Newcastle (first referred to *circa* 1150), almost totally wrecked in 1771; and that at York, 70 feet span, taken down about 1820.

Those named are not all the earliest bridges in the North of England, for there are very early references in literature to Haydon Bridge on the Tyne, as well as to the one at Corbridge beside the Roman city. The latter is referred to in 786 in the Chronicle of Melrose; is named in 1150; rebuilt in 1235; and definitely mentioned as being of timber when it had to be repaired in 1299. It is then spoken of as the only bridge on the river above Newcastle. The present stone bridge has a stone dated 1764, and this is generally given as the date of its construction. Berwick Bridge is mentioned in 1199 as having been swept away, and in the



Fig. 8. Hereford Bridge, 27 to 32 feet span, showing arches of different styles and dates.

Chronicle of Lanercost it is stated that the stone pillars were overthrown by a flood in 1294 and people thrown into the water: it is also referred to in the Scalacronica as having been overthrown because the arches were too low. These three bridges came into considerable prominence in early history, as they seemed to be the points to which the raiding armies directed their way, and they then had an importance far beyond their local usefulness. All seem to have been constructed and reconstructed.

It is a feature of the English bridges, as distinct from those in Scotland, that as the southern rivers moved more slowly, destruction from floods was of less frequent occurrence. The mending and patching of the older bridges has been carried on to such an extent that the majority of the old English bridges are, in detail, a heterogeneous mixture of the ideas of different periods, and one can pick out arch by arch the different patchings to which they have been subjected. The two best examples are probably those at Hereford and Yarm, for

in each case one can see evidences of almost every period from the thirteenth to the nineteenth century.

A word of caution is necessary in regard to many of the statements about bridges that are printed in different books. Undependable references have crept into much of the antiquarian and other literature, and one has to exercise a considerable amount of discretion before trusting even to printed statements. One of the best examples of this occurs at Barnard Castle, where all the guide-books give the date on the bridge as 1569, whereas it is 1596—evidently one has copied from the other, or all from the same erroneous source. Eaglescliffe Bridge, according to another authority, was removed and rebuilt of iron. The old stone bridge is still there, but iron girders have been used to widen it. Otley Bridge is also spoken of as having been washed away, but one is incredulous of this, as so many old arches remain. One would be inclined to put down the number of arches broken as two out of seven.

GATEWAYS.

In regard to these early bridges, a reference must be made to the gate which spanned the centre of almost all these old structures, for defensive or fiscal purposes. It was formerly the custom to have a gateway in the centre or at the end of most of the important bridges, in some cases for defensive purposes, in most for toll; but almost all of these gateways were taken down in the coaching period, when they formed a rather serious obstruction. Of this type there is now only one left, that at Monmouth (fig. 9), and it is to be hoped that every effort will be made to retain this picturesque, if inconvenient, access to the town.

At St Ives (fig. 10), in Huntingdonshire, the toll-house in the centre of the bridge remains, but there is no gate, and the date on the lintel of the house, 1736, shows that the present building is of no great antiquity. The bridge itself is very ancient, but has been remodelled and rebuilt from time to time, as is evidenced by the different styles of masonry.

A bridge of unique type is that at Ambleside, where a complete house has been built occupying the whole arch; and although the bridge is only 9 feet wide and 22 feet span, the house has an upper story. It would appear as if, when the new bridge was completed, the old bridge had been sold to a frugal person, who erected a house on it free of questions of the land proprietor. The bridge, which is of ordinary rubble masonry, shows no great signs of antiquity, and is probably somewhat over a hundred years old.

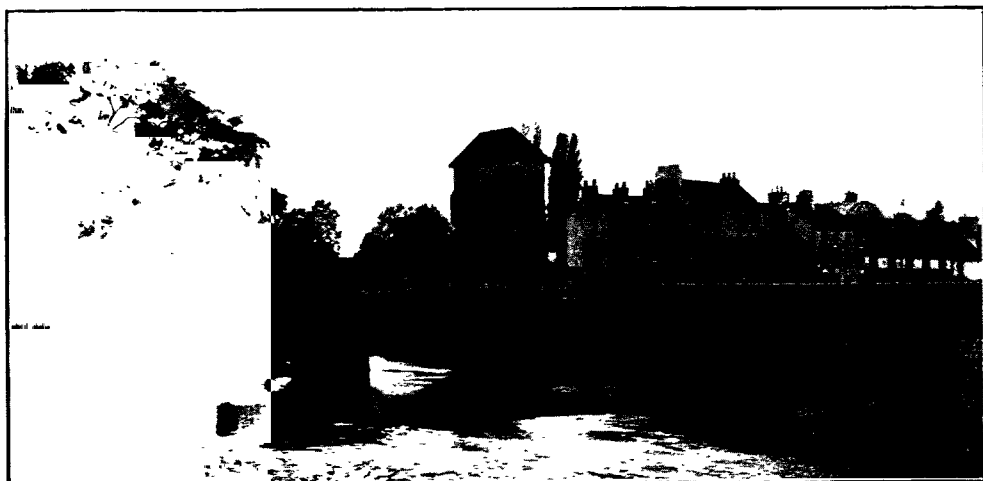


Fig. 9. Monno Bridge (Monmouth), $27\frac{1}{2}$ to 32 feet span, with gateway—the only specimen left in England.

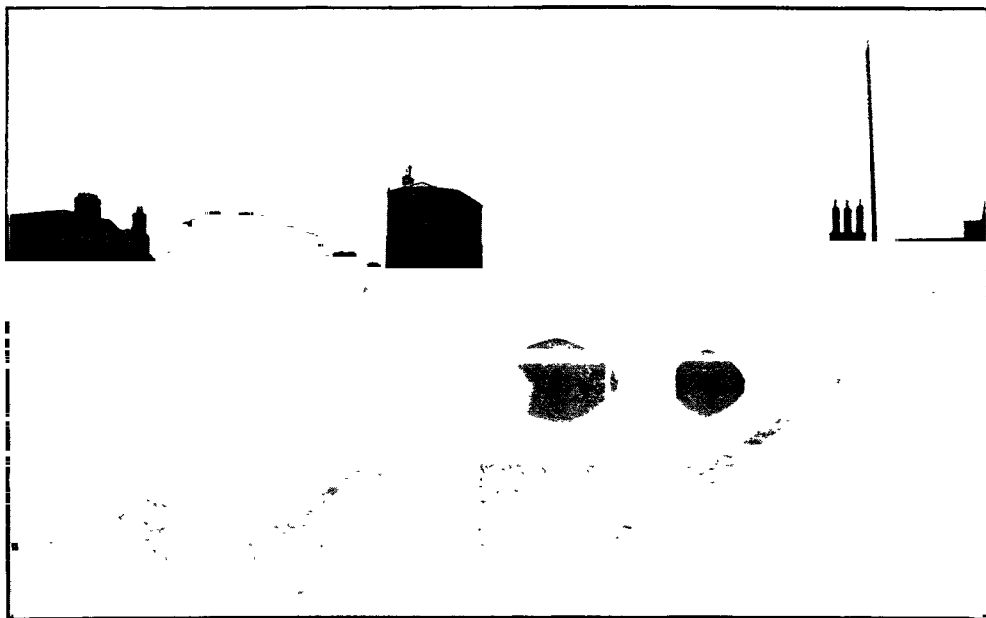


Fig. 10. St Ives Bridge (Hunts.), 22 to 30 feet span, with house dated 1736.

ANCIENT SCOTTISH BRIDGES.

While it is noticeable that the ribbed bridges constitute, almost without exception, the earliest form of bridge in England, it is remarkable that the ribbed bridges in Scotland, whose dates are known, all seem to come within the period from 1520 to 1540, and this fact makes one hesitate to place the style at such an early date as in England. There are at present fourteen bridges of this type remaining, and, placing them according to the size of the span in the same fashion as the English bridges, the result is as follows:—

Bridge.	Span.	Remarks.
	feet.	
Tullibody, fig. 11 . . .	18½	
Pencaitland	18	
Roberts (Dingwall). . .	20	1540-1560.
Dairsie	26½	1530.
Jedburgh	30	
Avon (Hamilton), fig. 12	34	
Cramond	36-38	
Abbey, Haddington . . .	38	
Linton, East	43	
Bothwell	45	
Dee (Aberdeen)	46	1527.
Maiden (Newbattle) . . .	50	
North Water	51½	1539.
Gannochy	65	1732.

In addition to these, quite a number of ribbed bridges have been demolished at various periods, the most important of which were those at Inverness, Leith, and Hawick. In addition, there are a couple of insignificant bridges across a mill-stream near Melrose Abbey, each with a span of about 12 feet. Commenting upon the above references, the facts all point to these structures having been erected between 1480 and 1540, and it is remarkable how the type so universal in the fourteenth century in England, does not appear to have been much in use until the sixteenth century in Scotland.

THE OLDEST SCOTTISH BRIDGES.

Although Stirling Bridge is mentioned in history at an early date, yet it is the Bridge of Perth of which we have the earliest authentic evidence. It is first referred to in the Inchaffray Records, p. 50, in the year 1202, and in 1210 is known to have been overturned in a flood. Its chequered career is mostly contained in the Chronicle of Perth, *Musæ Threnodiæ*, and Frith's *Ecclesiastical Annals*.

In 1228 we come across a reference to a stone bridge over the Spey at the place where the Highland Railway now crosses that river

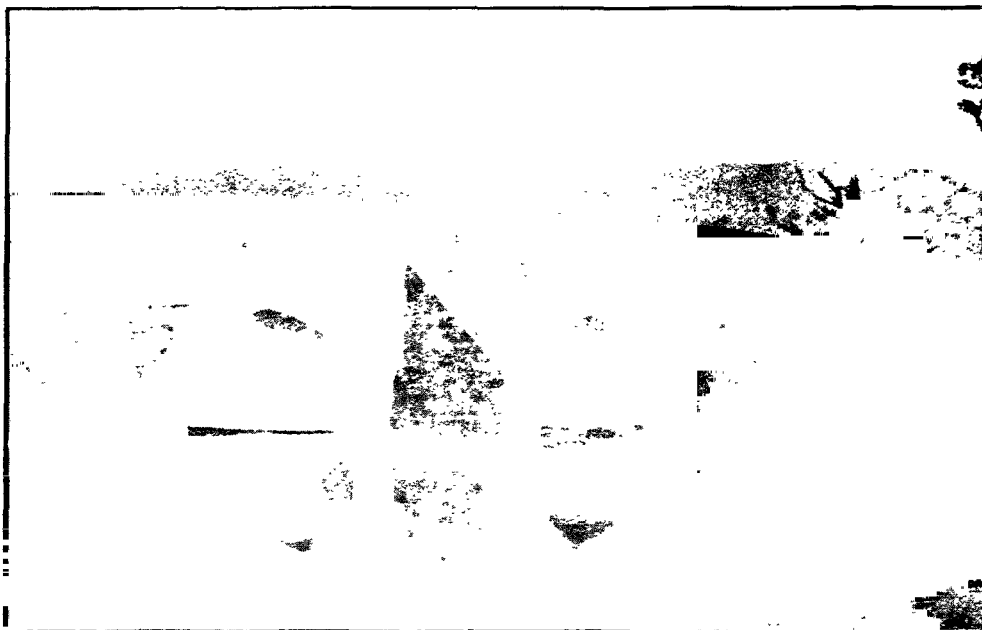


Fig. 11. Tullibody Bridge (near Alloa), 18½ feet span.

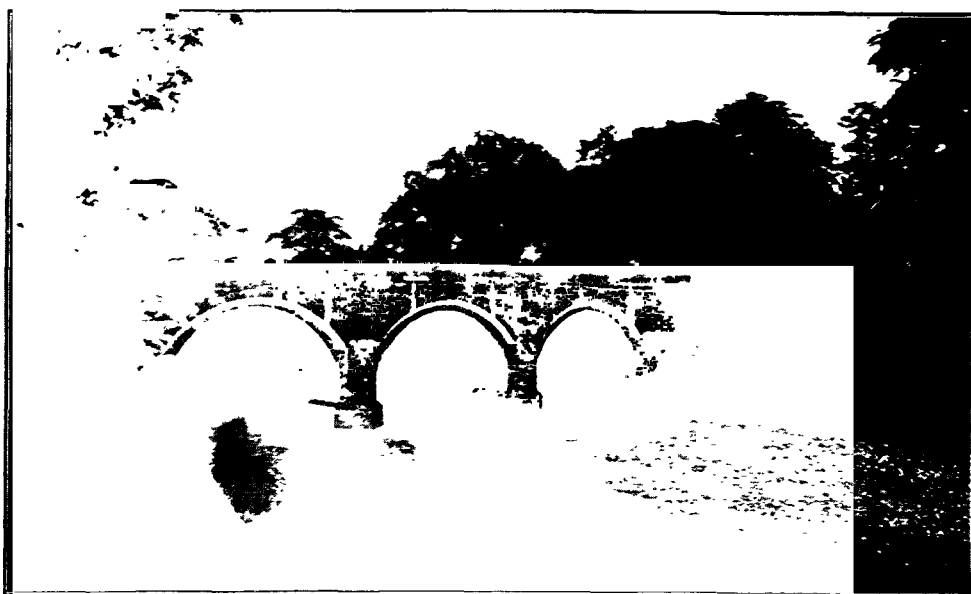


Fig. 12. Avon Bridge (near Hamilton), 34 feet span.

between Keith and Elgin. The place is called Boat of Bridge. It seems to have been one of the earliest stone bridges in Scotland, but it ceased to exist at the end of the fourteenth century, and it was never rebuilt (*Registrum Moraviense*, pp. 107 *et seq.*).

In 1218 I find mention of the Bridge of Brechin, but it is not the present one (*Registrum Brechinensis*, 271/224).

In 1236 the Brig of Ayr is named, but it appears to have been a temporary predecessor of the present structure (*Burgh Charters*).

In 1234 the Brig of Ettrick is mentioned (*Liber de Calchou*, 309). This is usually identified with the present Ettrick Bridgend, seven miles above Selkirk. I would, however, be inclined to make the suggestion that it is unlikely that this refers to a bridge in the Hunting Forest of Ettrick, as the reference is to the meeting of a justice eyre. Looking to probabilities, I think we must seek for the site of this bridge somewhere close to the modern bridge at Lindean, as the number of old roads converging at that place suggests it as the most likely spot. This bridge must have been washed away long before Scott of Harden built his bridge at Ettrick Bridgend in 1653.

In 1260 the Bridge of Dunkeld is referred to (*Cart. Cambuskenneth*, 268/184). This bridge must have been short-lived, as we read of it being built again of stone and timber in 1461. It is referred to as once again being built in 1513, and this time one stone arch was completed (*Lives of Bishops of Dunkeld*). The bridge appears on Timothy Pont's manuscript maps of Perthshire about 1619, but nothing further is known of it. In common with the two previous bridges at the same place, it seems to have disappeared altogether.

In 1272 the Bridge of Cart is referred to (*Regist. Passelet*, 51), and is assumed to be the one at Paisley. It is extremely probable that this also was a timber bridge, as the old bridge removed about 1850 does not appear to have been built much before 1600.

In 1285 the Brig of Clyde is mentioned (*Regist. Passelet*, 400), and, although no definite locality is given, it appears to be Glasgow Bridge. There is, however, a curious mark in one of Timothy Pont's manuscripts indicating a bridge over the Clyde at Carmyle, and in this case one observes old roads leading down to the point at which it was supposed to cross, showing that a bridge at this site is not an improbability. The old Bridge of Glasgow is generally supposed to have been built by Bishop Rae in 1345; but the evidence of this is so slender, and the facts point so much to a later date, that one must assume that Blind Harry's statement, that it was of wood, was accurate in every way.

Stirling Bridge, referred to in a document dated 1296 (*Calend. Doc.*

Scot., 186), has been dealt with in a previous paper very fully, but it also appears to have been of wood at that period.

IRISH BRIDGES.

In Ireland the building of stone bridges does not appear to have been undertaken in early times, for I have failed, so far, to come across any stone bridges of earlier date than the eighteenth century—they have either been replaced, or the old ones were of wood. The explanation may in some degree arise from the absence of Roman influence and example—there are no “Roman” bridges in Ireland; but the fact that Drogheda (a form of the Gaelic *drochaid*, a bridge) was the name of the town at a very early date, shows us they existed at a very remote period. There is a very early reference (1159) to a bridge at Athlone over the Shannon, but it is specially named as a plank bridge; while the wooden one at Killaloe was destroyed in 1170.

LATER BRIDGES IN ENGLAND.

The period of the seventeenth century appears to have been marked by some bold efforts to erect large bridges, and in County Durham in particular one sees a triple-ringed arch that looks most massive and strong. It is a type unknown in Scotland, and I have so far seen it nowhere else either in England or Ireland. One of the best examples of this construction is at Barnard Castle (fig. 13), where the two-arched bridge of 45 to 57 feet spans shows great strength. It is dated 1596. The same construction is shown on the splendid two-arch bridge spanning the Wear at Bishop Auckland, where 90 and 98 feet spans carry the road across the river. This bridge is ascribed to the date 1388, but one is hardly inclined to accept such an early date for two large spans, when all the old bridges in the neighbourhood of that period are of the usual small span.

Another type of bridge of which there are a fair number in England, but hardly any in Scotland, is the packhorse bridge. The roadway is only from 4 to 5 feet wide. They correspond in some degree with the bridges of the Church-bridge period in Scotland, but are much narrower and have a heavy parapet. They are usually of one large arch, and one of the best of the type is seen at Dob Park near Otley, and at the Beggar's Bridge near Whitby. They appear to have been built for the packhorse traffic mostly in the seventeenth and eighteenth centuries, and the only one I have seen in Scotland resembling them is the narrow bridge in Alyth, where the same heavy parapets appear.

The eighteenth-century developments of bridges largely consist of

an increase in the size of the spans; and in the nineteenth century, in the massiveness and solidity of the structure.

One of the most instructive facts, however, in the relation of these early ribbed structures to those of the later periods is that the ribs or rings were originally the solid part of the bridge, and the arch was no

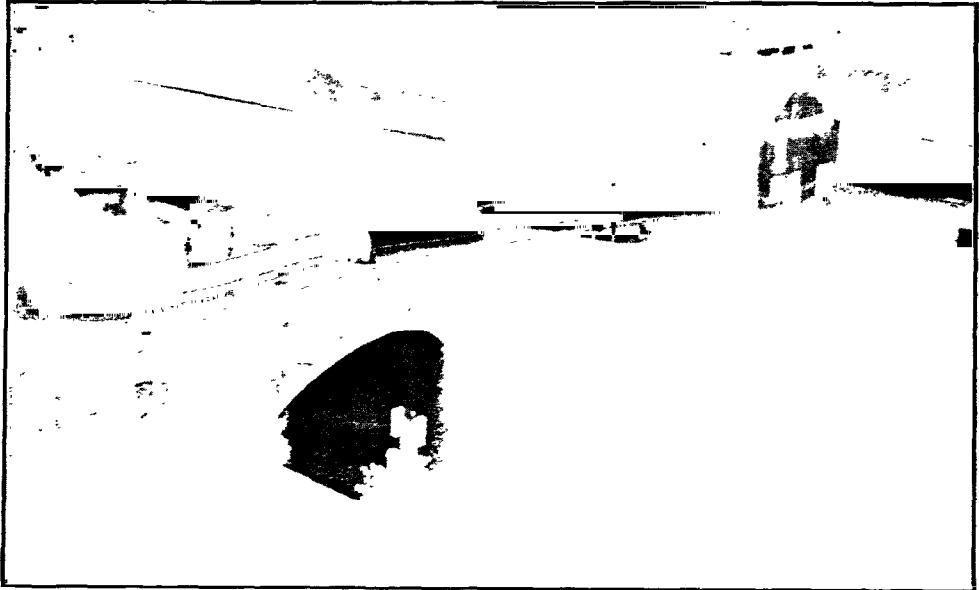


Fig. 13. Barnard Castle Bridge, 45 to 57 feet span, 1596.

more than a covering of stones to these rings. Later the arch itself became the substantial part, and the rib dwindled merely to an ornament or a secondary support, and finally disappeared altogether.

It was therefore a remarkable fact that when the first iron bridge was constructed at Colebrookdale in Shropshire in 1777, the ribbed type of arch was faithfully reproduced in iron as in the primitive structure, showing the inherent strength and usefulness of the original design in stone.

MONDAY, 12th April 1915.

THE HON. JOHN ABERCROMBY, LL.D., President.
in the Chair.

A Ballot having been taken, the following were duly elected:—

Fellows.

ALGERNON WARD, M.A. (Cantab.), Archdeacon in Egypt, St Mark's.
Alexandria, Egypt.

C. J. W. SIMPSON, Principal Architect, H.M. Office of Works, Edinburgh.
51 Cluny Drive.

JAMES BALLANTINE, Goodtrees, Murrayfield.

There were exhibited:—

By FRANCIS C. EELES, F.S.A. Scot.

Several fragments of leading for window glass recovered from the ruins of the Wheel Kirk, Roxburghshire, in excavations by the Hawick Archæological Society, and believed to be of early sixteenth-century date.

The following Donations were exhibited, and thanks voted to the Donors:—

(1) By A. NICOL SIMPSON, Esq., Whinhurst, Fordoun.

Cinerary Urn with overhanging rim, $8\frac{1}{2}$ ins. in height, $5\frac{7}{8}$ ins. in diameter at the mouth, and $3\frac{1}{2}$ ins. at the base; found about twenty years ago along with a number of others, believed to have been destroyed, at Templebank Quarry, Auchinblae, near Fordoun, Kincardine.

(2) By WALTER J. KAYE, F.S.A. Scot., the Author.

Roman (and other) Triple Vases. London, 1914. 12mo.

(3) By THE SUPERINTENDENT GOVERNMENT PRINTING, India.

Archæological Survey of India, 1910-11. Calcutta, 1914. 4to.

Antiquities of Indian Tibet. Part I. Calcutta, 1914. 4to.

(4) By THE DIRECTOR AND SECRETARY, Victoria and Albert Museum,
South Kensington.

Department of Woodwork. The Panelled Rooms.

1. The Bromley Room. London, 1914. 8vo.

2. The Clifford's Inn Room. London, 1914. 8vo.

The following Communications were read:—

I.

THE CELTIC NUMERALS OF STRATHCLYDE.

BY DAVID MACRITCHIE, F.S.A. Scot.

At the present day the term "Strathclyde" is generally understood to denote the region drained by the river Clyde and its tributaries; and this, indeed, must be the oldest application of the name. In his map of "Scotland with the Ancient Divisions of the Land,"¹ Skene gives a slightly wider interpretation, for he indicates that the districts of Cunningham and Kyle, as well as the whole of the modern counties of Renfrew and Lanark, came within the bounds of Strathclyde. At one period, however, the country belonging to the Britons of Strathclyde, otherwise known as the Strathclyde Welshmen, or the Cumbrians, was of much greater extent, and constituted an important kingdom. In the beginning of the seventh century, according to Skene, the sway of the Strathclyde Welsh extended as far north as Glen Falloch, taking in a considerable slice of western Stirlingshire and the whole of the Lennox—that is to say, the country lying between Tarbet, Arrochar, Loch Long, and the Clyde. Loch Lomond was, therefore, almost entirely under the dominion of the Strathclyde Welsh in the seventh century. From Loch Long their territory stretched due south through the modern counties of Dumbarton, Renfrew, and Ayr as far as, or nearly as far as, Loch Ryan. The boundary then turned eastward, skirting the northern frontiers of Wigtown and Kirkcudbright, until it reached the Nith, after which it crossed the Solway and took in a great part of the country lying on the west side of the Pennine Range. Its eastern limit was the borders of Northumbria, or Bernicia, following a fairly straight line northward to the Moorfoots and Pentlands, and then slanting north-westward into Stirlingshire.

Such is the information supplied by Skene's coloured map, showing the boundaries of the four kingdoms of Scotland in the beginning of the seventh century.² Skene's written description does not quite tally with his map, for he says³ that the Strathclyde kingdom "extended from the river Derwent in Cumberland in the south to the Firth of Clyde in the north." Thus he limits the northern frontier to the Firth of Clyde, whereas his map pushes that frontier as far as Arrochar and Ardlui. Skene's verbal account is, however, of much interest and value, and it has such a distinct bearing upon the question of language

¹ Prefixed to vol. iii. of *Celtic Scotland*, Edinburgh, 1880.

² Opposite p. 228 of vol. i. of *Celtic Scotland*.

³ *Celtic Scotland*, i. 235.

that it seems very desirable to quote it here at length. The kingdom of the Strathclyde Welsh in the seventh century. Skene informs us, "comprehended Cumberland and Westmoreland, with the exception of the baronies of Allerdale or Copeland in the former and Kendal in the latter, and the counties of Dumfries, Ayr, Renfrew, Lanark, and Peebles, in Scotland. On the east the great forest of Ettrick separated them from the Angles, and here the ancient rampart of the Catrail, which runs from the south-east corner of Peeblesshire, near Galashiels, through the county of Selkirk to the Peel Hill [Fell] on the south side of Liddesdale, probably marked the boundary between them. The population of this kingdom [Greater Strathclyde] seems to have belonged to the two varieties of the British race--the southern half, including Dumfriesshire, being Cymric or Welsh, and the northern half having been occupied by the Damnonii, who belonged to the Cornish variety. The capital of the kingdom was the strongly fortified position on the rock on the right bank of the Clyde, termed by the Britons Alcluith, and by the Gadhelic people Dunbreatan, or the fort of the Britons, now Dumbarton; but the ancient town called *Caer Luel* or *Carlisle* in the southern part must always have been an important position. The kingdom of the Britons had at this time no territorial designation, but its monarchs were termed kings of Alcluith, and belonged to that party among the Britons who bore the peculiar name of Romans, and claimed descent from the ancient Roman rulers in Britain. The law of succession seems to have been one of purely male descent."¹

In the beginning of the seventh century, therefore, the people who ruled this dominion of Strathclyde, or Cumbria, were the "Strathclyde Welsh," a name by which they were known in the ninth century, if not earlier. This appears from the following reference: "Simeon of Durham tells us that in 875 the host of the Danes who had ravaged the east coast of Britain . . . destroyed the Picts and the people of Strathclyde. . . . The people here called of Strathclyde are in the Saxon Chronicle, in recording the same event, termed *Stræcled Wealas*, and this name is rendered by Ethelwerd into the Latin *Cumbri*, which is the first appearance of the term of *Cumbri* or *Cumbrians* as applied to the Britons of Strathclyde."²

Although undergoing certain vicissitudes,³ this kingdom of the Strathclyde Welsh maintained its national character for fully four hundred years. Under their king Owen, son of Domnall [otherwise Eugenius the Bald], an army of these Strathclyde Welsh co-operated

¹ *Celtic Scotland*, i. 235-236.

² *Celtic Scotland*, i. 325-326.

³ The "destruction" by the Danes in 875 had been preceded by temporary conquests by the Angles of Northumbria in the eighth century. See *Celtic Scotland*, i. 267, 295-296, 325.

with the army of Malcolm II., King of Scotia, in his invasion of Northumbria in 1018, and aided Malcolm in his great victory at Carham-on-Tweed, which resulted in the cession to Scotia of all the territory between the Tweed and the Forth. Owen's death in the same year ended the direct line of the kings of Strathclyde, and that kingship thereupon reverted to Malcolm II. as nearest heir. Malcolm afterwards made his grandson Duncan "King of the Cumbrians," a title subsequently borne by Malcolm Canmore. It is stated by Sir John Rhys¹ that Strathclyde "was still more closely joined to the Scottish crown when David became king in 1124; but its people, who formed a distinct battalion of Cumbrians and Teviotdale men in the Scottish army at the Battle of the Standard in 1130, preserved their Kymric characteristics long afterwards."

Of these Kymric characteristics one of the most notable was their language, and with regard to it Sir John Rhys further observes (*loc. cit.*): "How late the Welsh language lingered between the Mersey and the Clyde we have, however, no means of discovering, but, to judge from a passage in the Welsh Triads, it may be surmised to have been spoken as late as the fourteenth century in the district of Carnoban, wherever between Leeds and Dumbarton that may turn out to have been."

A discussion by Sir John Rhys of this passage in the Welsh Triads would be of much interest, and it may yet be forthcoming. In the meantime it is enough to note that he sees reason to believe that a Cymric speech survived in some region of Strathclyde in the fourteenth century. Languages generally die a lingering death, and the Cymric of Cornwall was still a spoken language in the eighteenth century, although it was then only known to a few. What is more to the point, however, is that a series of Cymric numerals, from 1 to 20, is still in use in various districts of Strathclyde even at the present day.

This series was first brought under the notice of modern scholars in 1866 by Dr Alexander J. Ellis, Vice-President of the Philological Society. He then referred to it as "a method of 'scoring sheep,' as used in the dales of Yorkshire, written down from the dictation of two Yorkshire ladies." These two versions he reprinted in the *Transactions of the Philological Society* for 1870; and, continuing to accumulate variants, he was able to submit no less than twenty-five of these to the same Society on 6th February 1874. These had been obtained from Yorkshire, Durham, Northumberland, Westmorland, Roxburghshire, and—in three instances—from North America, obviously importations from Great Britain. By 1878 he had increased his stock to fifty-three versions, and at a still

¹ *Celtic Britain*, p. 149.

later date he had collected over sixty. On the 7th of December 1877, using as a basis the forty-five versions which he then possessed, he read a long and elaborate paper on this subject before the Philological Society, duly printed thereafter in that Society's *Transactions*,¹ extending to fifty-seven pages.

The information furnished by Ellis, at one time or another, naturally aroused a widespread interest in this question, of which one outcome was the appearance of several communications in the *Athenæum* of 1877 (part ii.) by Canon Isaac Taylor, Dr Bradley, and others. Evidence from many quarters proved that this Cymric system of enumeration was regularly used by the shepherds of Yorkshire, Westmorland, and Cumberland, in telling off their sheep by scores, and that it was also in use, in the same region, among old women when counting the stitches of their knitting. The conclusion generally arrived at was that this was the remains of an ancient British speech, substantially the same as modern Welsh, although differing from that form of Cymric in certain details. With great reason Canon Taylor pronounced this ancient speech to be that of the Britons of Strathclyde or Cumbria, by which designation he understood the territory stretching from the Firth of Clyde southward through Cumberland and Westmorland to a southern frontier somewhere in Yorkshire.

Writing to the *Athenæum* in 1877, with regard to the Cymric numerals obtained in the north-west of England, Canon Taylor remarks:—

“By collating the numerous lists which are now before me, I have been able to obtain a sort of standard text, tolerably free from the philological difficulties which beset my first imperfect list. I now place this revised edition of the Cumbrian numerals side by side with the oldest known Kymric forms, bracketing important variants, and italicizing certain letters which seem to be due only to the jingling assonances which have crept into all the versions.”

Taylor's lists of Old Cymric and Anglo-Cumbrian are here reproduced; with the omission of several variants in the latter list, and of the italicized letters to which he refers. These omissions are made partly because the variants are not necessary on the present occasion, and partly because I do not accept all the inferences implied by Taylor's italics. With these modifications, Taylor's lists are as follows:—

<i>Old Cymric.</i>	<i>Anglo-Cumbrian.</i>	<i>Old Cymric.</i>	<i>Anglo-Cumbrian.</i>
1. Un	Ain.	4. Peteir	Pethera.
2. Dui	Tee.	5. Pimp	Pimp.
3. Teir	Tethera.	6. Chwech	Sethera.

¹ Vol. 1877-8-9, London, 1879, pp. 316-372.

<i>Old Cymric.</i>	<i>Anglo-Cumbrian.</i>	<i>Old Cymric.</i>	<i>Anglo-Cumbrian.</i>
7. Seith	Lethera.	14. Peteir-ar-dec . .	Pether-a-dik.
8. Oith	Hovera.	15. Bymthec	Bumfit.
9. Nau	Dovera.	16. Un-ar-bymthec . .	Ain-a-bumfit.
10. Dec	Dik.	17. Dui-ar-bymthec . .	Tain-a-bumfit.
11. Un-ar-dec	Ain-a-dik.	18. Teir-ar-bymthec . .	Tether-a-bumfit.
12. Dou-dec	Tain-a-dik.	19. Peteir-ar-bymthec . .	Pether-a-bumfit.
13. Teir-ar-dec	Tether-a-dik.	20. Ucent	Iggan.

On comparing these two lists with each other and with Modern Welsh, one realizes that all are practically one system of numerals, presenting merely minor differences. Old Cymric and Anglo-Cumbrian are, however, more akin to each other than to Modern Welsh, although the points of difference are very slight. It is of interest, also, to compare Old Cymric and Anglo-Cumbrian (otherwise Strathclyde Cymric) with the now obsolete Cymric numerals of Cornwall, and with those of modern Brittany and Wales. These three varieties of Cymric are as follows:—

<i>Cornish.</i>	<i>Breton.</i>	<i>Modern Welsh.</i>
1. un <i>or</i> ònen	unan	un.
2. dew	deu	dau.
3. trÿ <i>or</i> tyr	tri <i>or</i> tair	tri <i>or</i> tair.
4. peswar <i>or</i> peder	puar <i>or</i> pedair	pedwar <i>or</i> pedair.
5. pymp	puemb	pump.
6. whelh	huéh	chwech.
7. seyth	seih	saith.
8. eyth	eih	wyth.
9. now	nau	naw.
10. deg <i>or</i> dek	déc <i>or</i> deu	deg <i>or</i> deng.
11. idnak	uinéc	un-ar-ddeg.
12. dawdhak <i>or</i> dewthak	deuzéc	deuddeg.
13. tórdhak	trizéc	tri-ar-ddeg.
14. peswórdhak	puarzéc	pedwar-ar-ddeg.
15. pempthek	puembzéc	pymtheg.
16. whedhak	huéhzéc	un-ar-bymtheg.
17. seydhak	seitéc	{ dau-ar-bymtheg. deg-a-saith.
18. eydhak	trihuéh	{ deunaw. tri-ar-bymtheg.
19. rownjak	nandéc	pedwar-ar-bymtheg.
20. igans	uiguënd	ugain.

Of the many examples on which Ellis bases his paper of 1877–1878, only two are derived from Scotland. One of these he describes as “communicated by Henry Muirhead, Esq., M.D., of Bushy Hill, Cambuslang, Lanarkshire, as a rhyming formula which half a century ago [say 1827] himself

and the children in Pollokshawes, three miles south of Glasgow, a part of old Cambria, were in the habit of employing for 'counting out,' viz. :—

- | | | |
|---------------|-------------|--|
| 1. zaindie. | 6. a seater | } "These are evidently
transposed" [Ellis]. |
| 2. taindie. | 7. a heater | |
| 3. tether. | 8. a hover. | |
| 4. a methier. | 9. dover. | |
| 5. a bamf. | 10. deekit. | |

Side by side with this list may be placed that supplied to me by the late David Patrick, LL.D., who stated that he and his comrades used it in their games about the year 1860, in the Kyle district of Ayrshire. It goes thus:—

- | | |
|-------------|--------------------------|
| 1. zinty. | 6. aleeter [or leetera]. |
| 2. tinty. | 7. aseeter [or seetera]. |
| 3. tetheri. | 8. over. |
| 4. metheri. | 9. dover. |
| 5. bamf. | 10. dik. |

The other example which Ellis obtained from Scotland was supplied by Sir James A. H. Murray, who was born at Denholm, near Hawick, in 1837. It is recorded by Ellis thus:—

- | | |
|---------------|--------------|
| 1. zeen'di. | 6. heet'uri. |
| 2. teen'di. | 7. zeet'uri. |
| 3. taedh'eri. | 8. ao'ver. |
| 4. muudh'eri. | 9. dao'ver. |
| 5. baom'be. | 10. dek. |

With this may be compared the version furnished to me by the Rev. William Hume Elliot, who states that about the year 1850 (when Sir James Murray was 13 years old) the boys of Teviotdale employed the same numerals as those of Ayrshire in their counting-out games. "I should think they must be in use about Hawick still," he observes, writing in 1905; and he adds: "At the time to which I refer [1850] they held unquestioned sway there among the young Teries, of whom I was one." He gives the following numerals:—

- | | |
|-------------|--|
| 1. zeendy. | } This list, by a Hawick
contemporary of Sir
James Murray's, coin-
cides exactly with
Murray's list. |
| 2. teendy. | |
| 3. tethery. | |
| 4. methery. | |
| 5. bumba. | |
| 6. | |
| 7. zeetery. | |
| 8. over. | |
| 9. dover. | |
| 10. dik. | |

I have here cited four Scottish specimens, two from Renfrewshire and Ayrshire, and two from the neighbourhood of Hawick. To these may be added the variant which the late Bruce J. Home, who was born in 1830, used in his boyhood in Edinburgh. The first ten figures go thus:—

- | | |
|------------------------------------|------------|
| 1. eenty, <i>sometimes</i> zeenty. | 6. eetful. |
| 2. teenty. | 7. |
| 3. tethery. | 8. over. |
| 4. methery. | 9. dover. |
| 5. banful. | 10. din. |

To Mr William D. Peace, Kirkwall, I am indebted for the two following variants, which are current in Kirkwall and a neighbouring parish:—

- | | |
|-----------------------------|-----------------------------|
| 1. zid . . . zitery. | 6. flid or lid . . leetery. |
| 2. did . . . ditery. | 7. |
| 3. | 8. hove . . . hovey. |
| 4. | 9. dove . . . dovery. |
| 5. pam or pamf . . pamfery. | 10. dik . . . dik. |

The occurrence of this Cymric score so far north as Orkney, not to speak of its existence in Edinburgh, raises at once the question of transmission or importation. It is manifest that the stronghold of these numerals, in modern times, is the territory of ancient Strathclyde, notably its English area. Where the score exists outside of the British Isles, as in North America, the explanation is that it was carried there by emigrants from the Mother Country. But there is more room for doubt when it is found in Connaught, in Orkney, in Mid-Lothian, in County Durham, in Lincolnshire, and in Essex. In all these instances the so-called Anglo-Cymric score may have been introduced by modern settlers from the north-west of England and the south-west of Scotland; just as it has been carried into lands beyond the seas. On the other hand, it may be argued that the language of which this is a remnant was once spoken by people living as far north as Orkney and as far south as Essex, and that it has lived on in these localities just as it has lived on in Strathclyde. This is a very interesting hypothesis.

In the course of a long and valuable letter contributed to the *Athenæum* in 1877 (part ii. p. 338), Canon Taylor expresses his conviction that the Cymric numerals used by old women in Craven, Yorkshire, while counting the stitches in their knitting, were “not derived from the Welsh [that is to say, the language of Wales], but that they belonged to a lost language of the Kymric class.” In a later number of the *Athenæum* (p. 433) he decides that this “lost language” was the speech of Strathclyde. More recent writers, such as Sir John Rhys, take the same view.

But, of course, there have been dissentient voices from 1866 onwards.

The idea of a Celtic speech lingering on among people whose present language is non-Celtic is repugnant to those who regard language and race as identical. Thus, in support of a theory that the North of England shepherds learned this score from Scotch people, Chancellor Ferguson of Carlisle remarks (*Athenæum*, 1877, part ii. pp. 469-470) that "many persons recollect the Highland drovers as habitually using one or other of the various versions of these numerals." Now, these Highland drovers, who came chiefly from the Central Highlands, spoke Gaelic, not Welsh. Macky, in his *Journey through Scotland* (London, 1723, p. 194), particularly states that those whom he saw at the Fair of Crieff "spake all Irish, an unintelligible language to the English." That these men used a Welsh score, and taught it to the people of Northern England, is an idea that can scarcely be entertained. If they taught any score at all to the English, it would be Gaelic, there is hardly room for doubting. And there is no evidence at all of the use of Gaelic numerals in the northern counties of England.

On the whole, the transmission theory is a weak one. Farmers and shepherds might borrow the score from drovers out of Ayrshire, or out of Wales itself, and even children might adopt it; but that old women, the most conservative of creatures, should count their stitches in a borrowed tongue is beyond reasonable belief.

The borrowing theory cannot be ignored, because Mr Ernest E. Speight, who has studied the Celtic numerals used in Upper Wharfedale, Yorkshire, has various positive statements in support of it. He gives two modern Welsh lists which he found at Grassington in Wharfedale, and with regard to these he remarks: "As far, then, as the Grassington Celtic numerals are concerned, the general theory regarding them as remnants of a language spoken in the North of England, so lately, Professor Rhys surmises, as the fourteenth century, is evidently incorrect. And I think that the same statement may be made respecting the similar sets of numerals found in other districts of the North of England, and that it will be possible ultimately to trace all variants to outside origin."¹

I have quoted this passage for the sake of the second sentence. The first sentence undoubtedly proves the introduction of a Celtic score, but as that score is Modern Welsh it is outside of the question. The second sentence, however, distinctly expresses the writer's belief that all the versions current in the North of England, some sixty or seventy in number, are capable of being traced to outside origin. The place of origin which he evidently favours is Scotland. He states that "the majority of the older inhabitants of Upper Wharfedale and of its

¹ *The Antiquary* (Elliot Stock, London), July-December 1893, vol. xxviii. pp. 204-205.

continuation, Langstrothdale, either do not recognise the numerals when quoted, or else refer to them as Scotch. . . . Occasionally a man is met with who has heard them used in the counting of sheep by Scotch drovers."

But even if all the North of England variants could be traced back to Scotland, that would not solve the problem. Scotch drovers, in the present and in the recent past, speak either Gaelic or the Lowland form of English. Now, the numerals in question are Cymric. We have therefore still to explain how it happens that people whose present language is Gaelic or English should employ Cymric numerals in counting; not the score current in Modern Wales, but a score which in some details is alien to Modern or even to Mediæval Wales. The simplest solution appears to me to be that the numerals used in Southern Scotland and Northern England have been inherited from ancestors who spoke a Cymric form of speech. The labours of the compilers of the *English Dialect Dictionary* have revealed the fact that the people living to the north of the river Trent at the present day have many traces in their speech of Celtic idiom and intonation, and occasionally they make use of Celtic words. The inference is that their forefathers, or perhaps one branch of their forefathers, spoke a form of Celtic. The rapid decay of Gaelic in our own time, without any displacement of population, shows how a mother-tongue may be abandoned in favour of one that is more popular and more widely known. A similar change may have taken place between the Clyde and the Trent, and these numerals may be the only remnant of the older language.

In these remarks I have adhered absolutely to one system of numerals. But Ellis, in 1877, shows that the list furnished to him by Sir James Murray shows the intrusion of another system in the numerals 11, 12, 13, 14, and 15. The same intrusive numerals appear in the Edinburgh list obtained by me from Bruce Home, and they appear again in a Nova Scotia list published by Carrington Bolton in his *Counting-Out Rhymes* (p. 103). To discuss this and other systems would enlarge the question indefinitely. And it would be quite outside of my present scope to consider the numerous children's rhymes which, although starting from actual numerals (in many cases, if not invariably), have developed into mere nonsense verses. The value of the Strathclyde numerals consists in the undoubted fact that they belong to a distinct form of Cymric speech.

[After the reading of this paper, Professor W. J. Watson, LL.D., F.S.A. Scot., mentioned that school children in Easter Ross are acquainted with this Cymric score; but it is not known in those communities whose only language is Gaelic.]

REFERENCES.

Alexander J. Ellis, F.R.S., in a paper on "Palæotype," read before the Philological Society, London, on 7th December 1866, and printed in that Society's *Transactions* in 1867, gives two versions, from 1 to 20, obtained in the Yorkshire dales. On 7th December 1877 Ellis read a paper before the same Society, entitled "The Anglo-Cymric Score," which was printed, with a very full appendix, in the Society's *Transactions* for 1877-79 (London, 1879, pp. 316-372). In the *Athenæum* for 1877, part ii., there are various communications on this subject from Canon Isaac Taylor, Dr Bradley, and others. In *The Counting-Out Rhymes of Children* (London, 1888, p. 121), Henry Carrington Bolton gives several variants; and also some corrupt versions on other pages. In the *Antiquary* (London, 1893, vol. xxviii, pp. 204-205) Ernest E. Speight has a paper on "Celtic Numerals in Upper Wharfedale." In the *Scottish Review* (Edinburgh: Nelson) of 5th October 1905, pp. 277-278, there is an article on "The Cymric Score" by David MacRitchie. Lastly, the *English Dialect Dictionary* (Oxford) records the existence of words belonging to this score in several counties of England.

II.

SCULPTURED SARCOPHAGUS AND CHURCHYARD MEMORIALS AT
DALMENY; WITH NOTES ON THE CHURCHYARDS OF EDZELL,
LETHNOT, AND STRACATHRO. BY ALAN REID, F.S.A. SCOT.

For many years a large stone coffin has lain a few feet southwards of the principal entrance to the beautiful Norman church of Dalmeny. It has been looked upon by generations of churchgoers and visitors, but its merits do not hitherto seem to have been recognised. Its original purpose, its massive bulk, its weathered drip-worn surfaces, may have aroused some curiosity; but its symbolic or artistic possibilities seem never to have been suspected. Yet the relic is fraught with significance, and exhibits not only a wealth of medieval chiselling, but the representation of a subject unique, so far as is at present known, among the sculptured stones of Scotland.

The favourable light of a summer day, or the incidence due to a special, though almost accidental, point of view, revealed the animal form, worked in bold relief on the foot-end of the sarcophagus, shown in fig. 1.

Though considerably worn, the animal form of this carving is quite distinct. The feet appear to be tufted, while the head seems to terminate in a short trunk, or long proboscis. The general outlines of its body are fairly well preserved, but its bulk has been so weathered that it is difficult

to say whether it has been furnished with wings, or whether the upper projection represents a tail curling over the animal's back. Body and limbs stand boldly out, however, and it is not easy to understand how this carving should have escaped previous observation. The coffin measures 7 feet 7 inches in length; is 28 inches wide over the shoulders; tapers to 21 inches at the foot; and is 18 inches in depth—these being external measurements. The size of the panel shown in fig. 1 is approximately 21 inches long by 18 inches in depth, the relief of the carving running from 2 to 3 inches, according to the weathering of the stone.

Great holes, causing peculiarly dense shadows, are worn in the surface



Fig. 1. Dalmeny sarcophagus, panel at foot.

of the west, or head, end of the coffin; but it is possible to trace here also the rear limbs and other portions of another and rather longer animal form (fig. 2). An aggravating "fault," of a very hard nature, runs right through the sandstone, and has the effect of dividing it, and the designs, into two horizontal layers or sections. This interferes considerably with the reading of the symbols, and must have presented serious difficulties in connection with their execution. The interior of the coffin is also clearly shown in fig. 2. The head is *shaped*, as in many examples at Govan, St Andrews, Brechin, Holyrood, and elsewhere; but, unlike most of these, it has no drain, and the trough lies half full of water during the greater part of each year. The inside depth is fully 10 inches, the sides tapering in thickness from $3\frac{1}{2}$ inches at the shoulders to nearly 5 inches at the foot, where, also, a mutilation of the left margin is observable. This fractured side is quite devoid of sculpture, proving by its plainness

that the coffin was originally intended to occupy a position against a wall, perhaps within a recess.

But attention centres mainly on the larger of the surfaces, shown in fig. 3. This represents the sarcophagus after 8 inches of turf had been removed from its long-buried bases. Even before that course was approved by the parish minister, the reliefs and hollows over the horizontal band of "trap" had assumed the appearance of a line of figures



Fig. 2. Dalmeny sarcophagus—west, or head, end.

standing under an arcading of Norman style, whose arches and supporting columns were more or less clearly indicated at different points in the worn sculpture. On the removal of the turf, the feet and garment skirts of thirteen standing figures were revealed. These details, as also the lower parts of the slender pillars which held the individual effigies as in a frame, appeared almost as distinct and complete as when first fashioned. Further, the central figure was seen to be raised over all the others, its feet resting on a well-defined step, or platform, $\frac{5}{8}$ inch high in actual

measurement, and about 8 inches relatively, the stature of the figure being 15 inches.

Though greatly worn, the thirteen different figures are still distinguishable, and seem to possess individual characteristics. Some have their hands and arms across their bodies, and others appear to bear a rebus or symbol. It seems possible also—but this is most diffidently advanced—to trace the form of a nimbus, or aureole, round the head of the central figure; certainly it is difficult to account for the peculiar form and projection of this central head in any other way. The archaic nature of

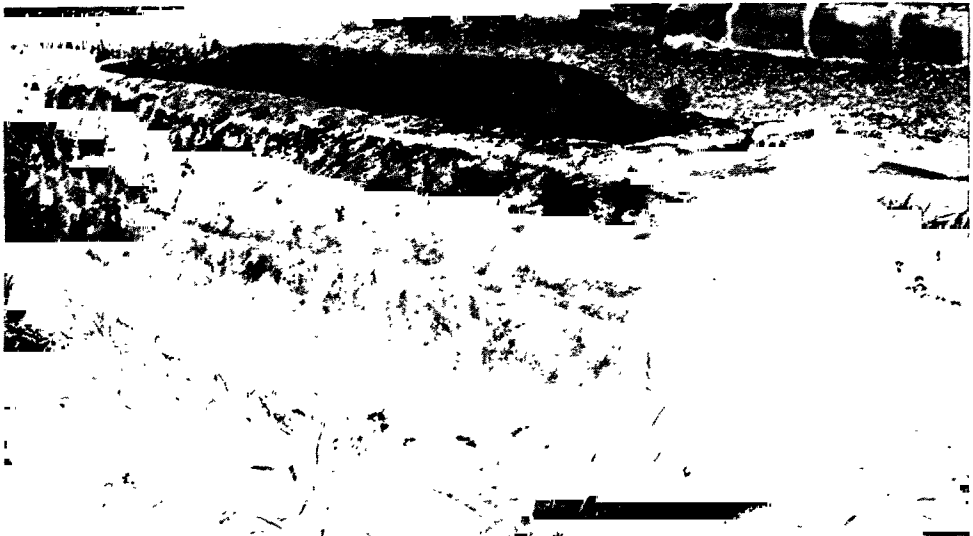


Fig. 3. Dalmeny sarcophagus, from south-east.

the entire work is unmistakeable; and this feature is perhaps exhibited most clearly in its best-preserved, lower portions, and not least in the line of little feet and skirts, which occupy exactly as many different levels as there are figures in the row.

Now, what are these figures, and what do they, in the aggregate, represent? We may find approaches to their individual types on many of our sculptured stones, but there does not appear to be another sepulchral memorial extant in Scotland showing a similar group—certainly none is recorded in the *Early Christian Monuments*, in the *Sculptured Stones of Scotland*, or in our own *Proceedings*.

Extremely worn, unfortunately, and the more confusing because of a grievous fault in the material, the details cannot be appraised with certainty; but the general design seems clear enough to determine that

here we have a representation of Christ and the twelve Apostles, six placed on each side of the central figure of our Lord.¹

Unfortunately, also, the lid of the sarcophagus has entirely disappeared. That it existed, even within reasonable memory, may be gathered from a reference in the New Statistical Account of the parish, where also may be gleaned all that is known regarding the fortunes of the relic: "At the door of the church," it runs, "there is a stone coffin of large dimensions, cut from a single block, and covered both on the lids and sides with hieroglyphics which cannot now be deciphered. It was found near to its present position, in digging a grave belonging to the Stewarts of Craigie, but nothing can be traced of its origin."

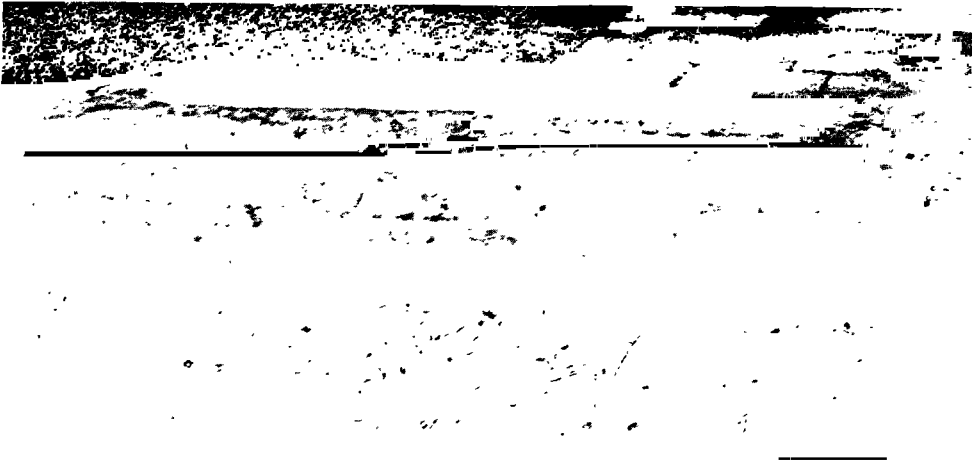


Fig. 4. Dalmeny sarcophagus, front view.

The finding of the coffin under the ground, within comparatively recent times, may simply mean that, at some time of church repairing, the large object was buried to save it from injury, or because it was found to be in the way. Certainly it was never intended to be placed beneath the ground, as its sculptured side, ends, and cover clearly prove; but to be set against a wall, probably in the interior of the chancel, as its other and quite plain side as clearly indicates. Against the *outer* wall of the chancel, to which in later times it must have been relegated, it would be subject to precisely such "drips" from the mouldings and corbelled masks that here project considerably as would indubitably carve the centuries-old furrows that seam and wrinkle its venerable front.

¹ In his *Guide to the East Neuk of Fife*, Dr Hay Fleming notes a wood-carving of "The Last Supper" which decorates a house in Pittenweem, a relic, probably, of the ancient priory.

The relic unquestionably belongs to the ancient site; but as the early history of the beautiful Norman church of Dalmeny is lost, so also is that of its complements. That the church was dedicated to St Cuthbert seems clear; that its founder was Earl Cospatrick is very probable; that it dates from the early twelfth century is self-evident; and that its designer was "one familiar with the work at the church of Durham"¹ is borne out by all the known and probable circumstances connected with its erection. Similarly, a twelfth-century date may also be claimed for the sarcophagus. Its adornments have much in common with others of that period, and are quite in sympathy with much of the carving still legible on the church. To say that the sarcophagus once held the remains of the founder of Dalmeny Kirk would be hazardous in the extreme; for even though the date of his death, 1138, may favour such an assumption, it must not be forgotten how much nearer is Northallerton to Durham than to Dalmeny. The same may be said of the suggestion that this was the shrine of Philip Moubray, who, by marriage with the daughter of Earl Waldeve, acquired the lands of Barnbogle and Dalmeny; but the date of his death, 1221, does not favour that idea. A more feasible probability of origin remains in the death, in 1182, of Robert Avenel, that parson of "Dunmanie" who, according to the *Registrum de Dunfermlyn*, witnessed the charter granted by Earl Waldeve to the church of Inverkeithing. Though there is no positive evidence that this, then, is the burial-chest of Robert Avenel—probably the first minister of this important parish, and held in high esteem for his faithful service, both as pastor and ecclesiastic,—there is certainly nothing improbable in such a suggestion.

A prototype might be found in the twelfth-century coped tombstone, or shrine, preserved at Peterborough Cathedral. Here there are six standing figures, carved in low relief as at Dalmeny, sculptured on each side of the slab, which is only 3 feet in length. These twelve very apostolic-looking figures stand under a similar arcading to that at Dalmeny; they are of nearly the same proportions, though somewhat taller, and are in so much better preservation that their various symbols are recognisable. The head of each is surrounded by a nimbus, a fact which militates against the tradition that here the monks of Hedda are represented, and also that the date 870, incised in Arabic numerals on the end of the slab, is other than the work of some modern vandal. The cope, resembling the roof of a house, is deeply splayed, and is delicately ornamented with bird and foliage forms, alternating with knots of interlaced work. From the great width of the Dalmeny chest—28 inches—such a covering as that suggested by the Peterborough

¹ Dr P. Macgregor Chalmers: *Dalmeny Kirk: its History and Architecture*.

slab would be entirely out of the question; but in the general feeling of its adornments the so-called shrine of Hedda aids materially in the mental reconstruction of the worn Dalmeny memorial.¹

The churchyard otherwise, and apart from the Rosebery burial aisle, contains a number of elaborate table-stones, a large representation of the symbolic designs common to the Lothians, and a few headstones that possess considerable merit of quaintness or originality.

Fig. 5 illustrates the head portion of a medieval cross, and a plain tombstone of 1747, showing the shuttle and reed of a weaver. The cross fragment usually lies in the rounded, hollow head of the sarcophagus, into which it *fits*, and where it is *safe*, and it was placed as seen



Fig. 5. Cross, and weaver's monument.

in the illustration solely for the purpose of photographing. Though quite a small object, it is interesting architecturally, for Mr John Watson, F.S.A.Scot., thinks it must have been the finial of a gable in the ancient church, possibly that now crowned by the comparatively modern belfry. It is 15 inches in length, 11 inches broad, and 5 inches in thickness over its largest surfaces. A simple cross of Latin form is fashioned by deep incisions on one face only, a bead running round the margin, beneath which a few inches of the rounded shaft remain.

The comparative rarity of the finer sorts of nautical instruments as tombstone adornments gives interest to the sextant, compasses, rules, and squares exhibited on the mariner's memorial shown in fig. 6. The

¹ A replicate of the Peterborough slab is in the Royal Scottish Museum. Beside it is another twelfth-century relic from Stockholm, which also shows figures standing under an arcading of Norman style.

double pediment is also an unusual feature; but the symbols of mortality, shown on the other side of the stone, are of the ordinary type. The date, 1728, is also on the reverse; and the inscriptions show that a family of Ramsays are commemorated here.

Few churchyard objects are more striking than the eagle displayed on the 3-feet-wide front of the tombstone shown in fig. 7. The great bird, which Dr Christison describes as a crowing cock, stands on a couple of mason's chisels, the mell of his craft appearing pendant between

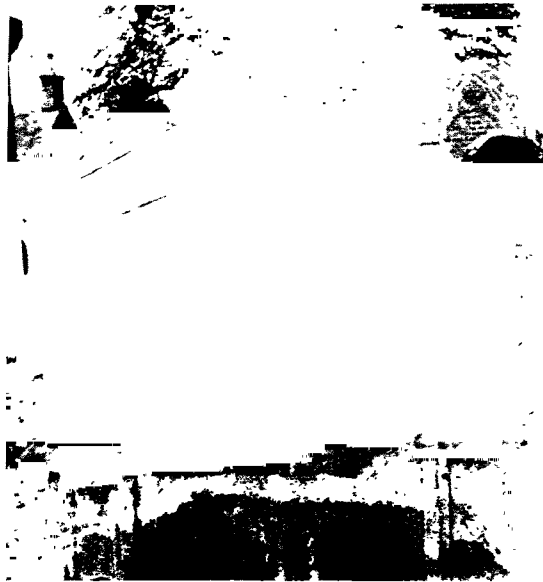


Fig. 6. Stone showing navigator's instruments.

them. This monument was erected in 1773; it commemorates Robert Ramsay, mason; and something about it suggests that it was his own handiwork. Curiously corroborative of that view is the quaint marginal inscription:

GRAVS THREE IN BREADTH TWO IN LENTH IS DEU,

which in some manner was intended to perpetuate the family right of sepulture. Three rooms, three lairs, or three graves are among the more common methods of expressing churchyard proprietorship, but this old mason had ideas of his own, and very naïvely asserted the length as well as the breadth of his property.

In fig. 8 two erect tombstones of uncommon designs are shown.

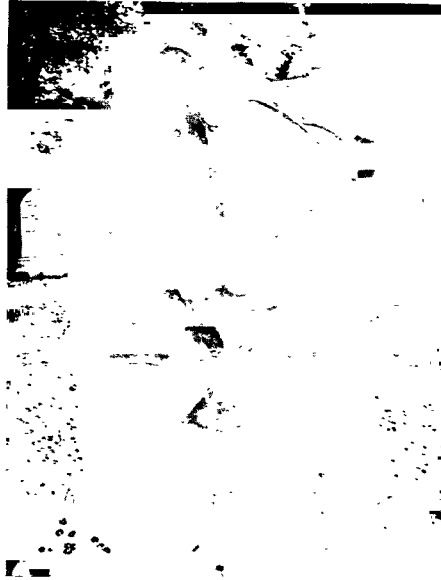


Fig. 7. Stone bearing the Ramsay eagle.



Fig. 8. Stones: (1) with hammerman's insignia; (2) with pierced enrichment.

That in the foreground commemorates Andrew Gray, whose boldly excised initials flank the insignia of the Hammermen's Incorporation. Other members of the Gray family are mentioned in the long, incised obituary; as also Isobel Moubray, spouse of the smith. The curiously perforated stone in the background is of the same early eighteenth-century period, and, like its neighbours, bears the usual emblematic designs on the reverse. Round the perforations on the front the following rhyme is incised:

TAKE WINGS MY SOULE AND MOUNT UP HIGHER
FOR EARTH FULFILLS NOT MY DESIRE;

the corresponding rhyme on the reverse of the same scroll reading:

DEATHS ON LONG SLEIPE AND LIFES NO MOR
BUT ON SHORT WATCH ANE HOUR BEFORE.

EDZELL.

In the old churchyard of Edzell parish¹ are a number of finely ornamented tombstones, dating from the eighteenth century; several architectural features of the pre-Reformation church; as also a sculptured slab of more than ordinary interest and importance. Nearly a dozen of the tombstones, of varying sizes, bear elaborate carvings, representative of death and immortality, and of the implements, mainly agricultural, used in life by the families which they commemorate.

Perhaps the best of these artistically, and the most representative, is depicted in fig. 9. The pediment here shows a winged cherub head; the base a winged skull—the only example here,—a ribbon with the legend *Memento Mori*, cross-bones, and a worn hour-glass. Over these symbols, and beneath the mantling which surrounds a central shield, a shrouded figure reclines, this also being the only example of its kind in the churchyard. The central shield, like most of its neighbours, displays the coulter and sock of a plough; other variants being spades, rakes, etc. Over the pediment are two mutilated cherubs, bearing trumpets; while another stone shows similar cherubs in the pediment, bending over floral wreaths in a grotesque manner. The Bruces of Westsyde are commemorated by this monument of 1749, whose inscription terminates rather quaintly:

IOHN AGNES MARGARET KATHERINE DAVID IEAN ROBERT &
MARY BRUCES.

¹ Near the celebrated castle of the Lindsays, and a mile distant from the modern village of Edzell, where is now situated the parish church.

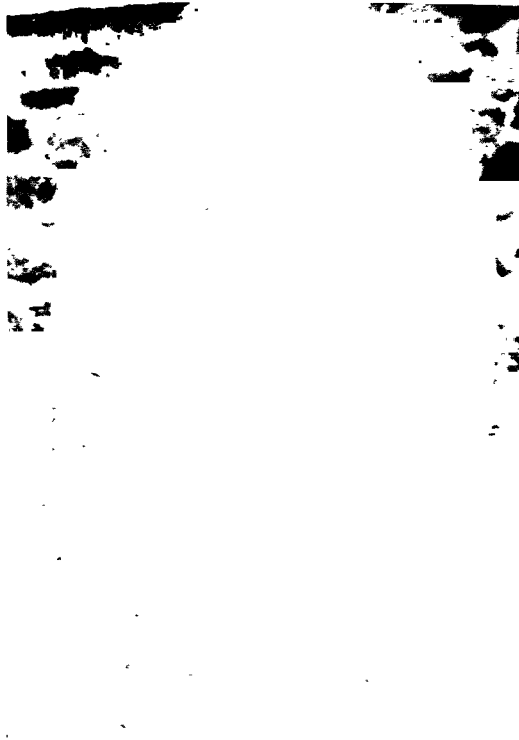


Fig. 9. Stone with heraldic treatment.

This wholesale grouping of names is followed by the complete text of a favourite rhyme, which appears usually at Edzell and elsewhere as a quatrain:—

Intombd we with our Fathers ly
 In earth and common dust
 Compose o man thy lofty eye
 As we are so thou must
 And so must all men that appear
 Or on the earth sojourn
 For of the dust they formed are
 And thence they must return.

Rhyming epitaphs are common here, as in the district generally, where the repetition of rhymes and symbols marks an era of close on fifty years. It is a relief from such monotony to come across the beautifully worked top of the seventeenth-century table-stone which

commemorates several ancestors of the local family of Don. Round the margin of this fine slab is excised the following obituary:—

HIER · LYES · THOMAS · DON · WHO · DIED · IN · THE · YEAR · 1672 · AND
AGNES · STEVARD · HIS · SPOUSE · WHO · DIED · IN · THE · YEIR · 1686 ·
AND · ELISABETH · DON · HER · DAUGHTER · WHO · DIED · IN · THE ·
YEAR · OF · GOD · 1661.

A central shield bears the initials TD, AS, and ED, as also a shield monogram comprising the same letters. The upper panel contains an incised rhyme in cursive characters of twelve lines, very much worn, and in parts quite undecipherable, but evidently of a character that justifies some effort towards their recovery. With some diffidence the following version is presented:—

Sweet Jesus who shall give me wings
Of pure and fervent [fervid] love
That I may mount from earthly things
And [rest] in heaven above
For there a — firm and fast
Where no man doeth lament
But — which — last
All who their sin repent
Therefor my soul now doeth the things
Wherein thou took delight
And wnto thee the king of kings
Doth fly with all his might.

The Don slab was, until quite recently, clamped against the masonry that filled the arch of the Lindsay burial aisle, the sole surviving fragment of the pre-Reformation church of Edzell. That masonry has now been removed, exposing to view the interior of an interesting building, and several mortuary and architectural details that merit attention. Chief among these is the sculptured slab shown in fig. 10.

Only recently was it possible to take a photograph of this object. Mr Jervise made a drawing of it for his *Epitaphs and Inscriptions*, but the result was consonant with the former gloom of the chamber; and a few years ago Mr F. C. Eeles¹ obtained a rubbing of the designs which only the work of the camera could improve upon.¹ The interest of the relic may be judged from its representation in fig. 10. The reading of the sculpture is fraught with difficulty, and the photograph must be left to speak for itself. It may be noted, however, that the figure of a man appears very distinctly in Mr Jervise's drawing, and that the association of this now very indistinct figure with that which he interpreted as a fish-like monster, on the side of the slab, led the Brechin antiquary

¹ *Proceedings*, vol. xlv. p. 350.

to regard the combination as a portrayal of the Jonah legend, though very wisely he did not advance that or any other theory. That a cross, or it may be two crosses, formed a portion of the work, along with several details of very clumsy interlacing, is quite clear. The supposed fish monster, which has several companions among our early sculptured stones,¹ may only be typical of vegetation or foliage: but it is unwise to dogmatise, surely, when, as here, it is scarcely possible to determine whether the relic now stands on its "feet" or on its "head."

The slab was first seen within recent times when, in 1870, the wall of



Fig. 10. Ancient sculptured stone.

the churchyard was taken down for rebuilding. It bears definite marks of its utilitarian treatment: on the other hand, its preservation, doubtless, was due to this usage by some rough-and-ready mason. Edzell, in the olden time, was of some account ecclesiastically, and is said to have had an Abbe, or Abbot. Dr Joseph Robertson thought that Edzell must have been the seat of St Drostan's monastery; for the entire district bears traces of his name, and is linked with that of St Lawrence at several points which converge on this romantic site.

Within the aisle, the old Laird's seat of the church, lie numerous

¹ Notably on the Murthly slab, now in the Museum, and described in the *Early Christian Monuments* as "a reptilian monster with a fish-like tail."

fragments of tombstones, which evidently have been deposited here for preservation. Among these are the supports of a table-stone—of the Don memorial, it may be—which are elaborately ornamented. One “end” shows three cherub-heads, a skull, three coronets, cross-bones, sceptre, two birds on branches, and a scroll with the very unusual and curious legend, *Ludibria Mortis*; and a “side” bears a rhyme, of which only these lines are now readable:

But yet the weight of flesh and blood
Doth soe her flight Restraine
That oft Increase but doth small good
I ryes and fall againe.

Fig. 10 also shows the large bowl of the ancient baptismal font, of octagonal shape, and measuring $28\frac{1}{2}$ inches across the slab of red sandstone, which is 19 inches in thickness, or depth. The basin is a roughly square cavity about 17 inches wide, is drained from the centre, and is over 10 inches deep. The edge of a moulded wall recess also appears in the figure. This detail is beaded on the sides, which rise from a plain sill and meet at the apex of the ogival lintel, 30 inches over the sill. The aumbry or cupboard is 13 inches in width and depth, and is finely worked, as also are the more elaborate “round and hollow” mouldings of a six-foot-wide, arched recess in the gable of the aisle. Strength, more than beauty, characterises the nine-foot arch that of old opened on the sanctuary, the bold splays and plain hollowed bases and capitals of the responds being excellently preserved, and suggestive of a fifteenth-century date.

From the floor of the aisle a short flight of stone steps leads to the burial vault of the Lindsays, a square, unlighted, arched chamber, with only a single and rather gruesome embellishment. The roof is formed of extremely flat, well-executed arches, the groining centering in a solid block, or keystone, in whose central boss is an iron ring from which a lamp could be suspended. Each angle of the keystone, which is 11 inches square, is carved into the form of a skull, measuring 5 inches in length and showing a relief of $1\frac{1}{2}$ inches. With the central rounded boss, which is 3 inches in diameter, they form the extraordinary but quite relevant decoration of a tomb regarding which local tradition has many stories to tell. Its preservation, along with that of the superstructure, the relics described, and the churchyard generally, is assured through the purposes, partially effected, of the present noble proprietor and the local authorities, who have recently opened up the aisle, renewed the boundaries of the ground, and erected a handsome gatehouse in the baronial style of the neighbouring ruins of Edzell Castle.

Of the remaining tombstones, one, of date 1742, shows burning torches

in addition to the usual emblems of mortality, and on a scroll the common rhyme, "As runs my glass Man's life doth pass." Its pediment shows a winged cherub-head, flanked by roses growing from vases, and the further well-known rhyme, "Remember man as thou goes by," etc. Curiously enough, its large, richly foliated, and crested central shield is quite devoid of those emblems that give such character to the tombstones of Angus and the Mearns, and raise almost to the status of a cult the home-made "heraldry" of the local mason. Similarly, a neighbouring memorial, dated 1754, takes no account of heraldic devices, and shows in the simplest manner the coulter and sock of the plough. But another, of date 1757, has its elaborately mantled and torch-flanked shield covered with the merchant's scales, an axe, and two picks or hammers; the emblems of mortality, and a winged cherub-head, appearing also under and over the shield.

LETHNOT.

The churchyard of Lethnot (since 1723 the united parishes of Lethnot and Navar) lies five miles westwards and northwards of Edzell. Navar, still further in the same directions, has its own most interesting old churchyard; but the church of the united parishes is now at Lethnot, and round it lies the ground now shortly to be examined. It contains two very elaborate table-stones and eight erect stones, all dating from or near to 1750, and all showing an abundance of the homely heraldry so consistently present in all the burial-places of the district. These shields generally display the plough-sock and coulter; one has a trumpeting cherub over the crest; while another shows a horse's hoof lying between two cherubs disposed around the pediment. The figure of a Sower adorns one end of the table-stone on which the cherub with the trumpet appears. Otherwise the symbolism follows closely the examples noted at Edzell; but Lethnot possesses the sill and part of the sides of a plain stone coffin. There is also an ancient baptismal font, circular in form, and with projections that could only have been handles. Both of these relics lie among the ivy, and against the south wall of the church.

STRACATHRO.

The parish of Stracathro, lying midway between Edzell and Brechin, is rich in memorials of the past. In the churchyard lie a group of three uncouth and very massive stones, which were lifted and deposited at the north-east angle of the church, when the burial-ground was "redd up," within living memory. These sandstone slabs are remarkable only for their bulk; but we touch human interest in a chiselled slab, very evidently of the late sixteenth century, now recumbent, but clearly an

erect stone originally, as its form and lateral inscription demonstrate. It is over 6 feet in length, close on 32 inches in breadth at the upper end, and narrows to 28 inches towards the foot. These proportions give the relic an air of considerable dignity, and, had its three-line inscription in large Roman letters survived, it would have taken premier place among the churchyard memorials of the district. As it is, only the words "HEIR LYES — — FARMER IN NEWTON" remain legible; but we are grateful for even that, as Newton is an estate of some importance, a celebrated judge having taken his title from it, while its farmers, merchants, and millers bulk largely in the epigraphy of Stracathro churchyard.

For example, the quaintly lettered and finely worked top of a table-stone reads:

HEIR · LYES · DAVI · BVRNE · SOMTYME · AT · THE · MILL · OF
NEVTOVN · AND · DAVID · BVRNE · HIS · SON · WHOE · SVCCEIDED
TO · HIS · FATHER · ALSO · TENNENT · AT · THE · SED · MILL · WHO
DEPARTED · THIS · LYFE · IN · ANNO · 1681 · HIS · AGE · 63.

Initials and a rhyme follow the inscription, which is disposed in relief around the margin, and in sunk letters on the surface of the slab.

The symbolism is very crudely designed, and shows the usual skull, cross-bones, and hour-glass, the same emblems occurring on several other slabs which also have lost their original supports. There are, however, four other table-stones which stand complete on pillars, or solid "ends." One of these, commemorating a relative, as is said, of the great banking family of Coutts, shows a fine winged cherub-head and a richly foliated and crested shield, on which is worked an open book with two stars appearing under it. The marginal inscription reads: "Here lyes in the Lord Master Alexander Coutes late minister in Strickathrou who departed this life the 14 of Apryl Anno 1695 years His age 40 years." The mortal emblems, a star, and the monogram M.A.C. are excised boldly at the foot of the slab. Another minister of the parish, one of the Guthries of Pitforth, is also commemorated, but on a slab so worn that only a few words are now legible.

Though encrusted with lichen, the "Adam and Eve" design on the small tombstone shown in fig. 11 is quite decipherable, and extremely quaint. It is simply a variant of a subject common to churchyard symbolism, but the mason was able to impart to it a strongly individual touch, also apparent in his delineation of the wool-stapler's shears and creels worked on the reverse, and on the inevitable shield. These homely "armorials" are in great force at Stracathro, and display tools of varied sorts, ploughs having several excellent single and double representations.

Most of these are of early eighteenth-century date, and again we find the rhyming epitaph of the period, displaying here a certain originality of diction. Two examples may be quoted: the first, from the tombstone of "John Towns sometime in Newtown Who died Nov. 15, 1738":

I am laid in grave my body doth decay
 Out of this world I was quickly taken away
 Heaven was my hope while I on earth did rest
 And now from earth to Heaven's joys I'm past ;

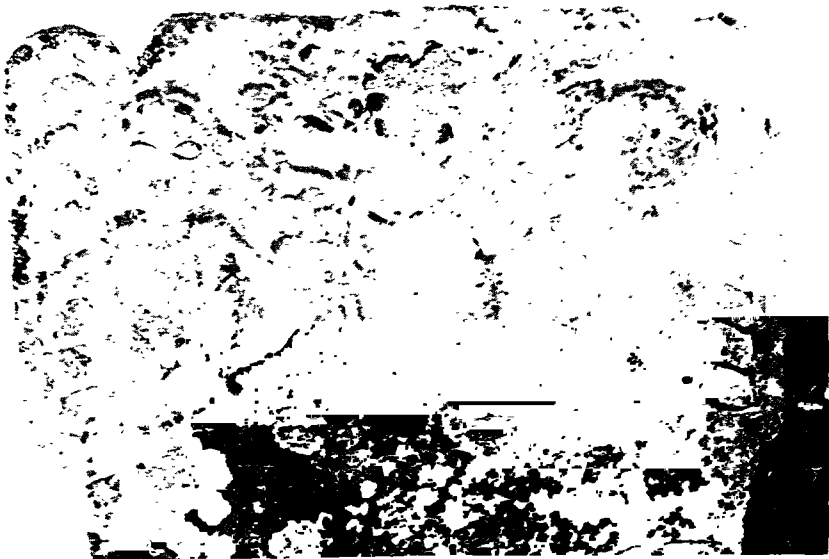


Fig. 11. Representation of Adam and Eve.

and the second (Psalm cxli. 7), from a plough-marked contemporary, shown on the right in fig. 12:

About the grave's devouring mouth
 Our bones are scattred round
 As wood which men do cut and cleave
 Lyes scattred on the ground.¹

It would be difficult to find anywhere a more remarkable group of small tombstones than that shown in fig. 12. In the centre is an excellent example of the local heraldic ornamentation repeatedly noted, the shield here displaying a carpenter's square and hatchet, the very unusual form

¹ A pathetic corollary on the condition of rural churchyards then, and an unconscious tribute to the better conditions usually prevailing now.

of a *hand-plane*, and a couple of hammers. Two small masks appear over the initialled pilasters, the *Memento Mori* scroll completing the adornment of the upper portion of the well-worked memorial. It dates from 1743, and commemorates "John Hall, sometyme Millar at Mill of Side."

To the right of fig. 13 is the stone bearing the verse, "About the grave's devouring mouth," etc., in whose pediment a cherub-head, with



Fig. 12. A group with remarkable devices.

rudimentary wings, and a mantled shield are curiously arranged. The mantling is of the crudest description—a poor copy from its neighbour, evidently,—but the monogram and plough are excellently rendered. On the left we have a representation of the Resurrection or Day of Judgment theme, treated with such realism as to have produced a ludicrous rather than an impressive effect. Unfortunately, there is neither date nor inscription on this gem of churchyard art, but it evidently belongs to the early eighteenth century.

Opportunity is here taken of figuring, for the first time, the only inscribed relic that has been found of the ancient chapel and graveyard

of Arnhall. The rubbing tells its own story,¹ which is that in anno 1668 the Earl of Southesk was the proprietor of four grave-breadths, or rooms, in the burial-place, and that the ground was numbered 171. Otherwise the stone, which in all probability was the lintel of the door leading into the Southesk enclosure, has no meaning—and certainly not that read into it by local writers, who seem never to have seen it. The lintel was built into the wall of the cottage at Chapelton about 1840.



Fig. 13. Stone at Arnhall.

A celebrated mineral well is in its immediate vicinity, and the cottage marks, approximately, the site of the pre-Reformation chapel and churchyard of Arnhall.

The Society is greatly indebted to Mr James Moffat, now of London, for the Dalmeny photographs; and to Mr John Oliver, of Leith, for those of Edzell and district. Rev. Peter Dunn of the Manse, Dalmeny, is also cordially thanked for his courteous assistance; as are Messrs Geddie and Watson for valuable counsel and company.

¹ The double eagle should, however, be the single eagle of the Carnegies.

ERRATUM.

Vol. xlvii. page 153, line 14, *read*, after "Sir Wm. Fergusson," "Louisa, Lady Fergusson, wife of Sir James, the present baronet," etc.

III.

DESCRIPTION OF SIMPLE INSCRIBED CROSS OBSERVED IN THE CHURCHYARD OF TARBAT AND NOW DESTROYED. By JAMES RITCHIE, M.A., D.Sc., ROYAL SCOTTISH MUSEUM, EDINBURGH.

HISTORY.

During a summer holiday in 1914 at the old, and once famous, fishing village of Portmahomack in Easter Ross, I made several visits to the parish churchyard of Tarbat—well known to antiquarians on account of the sculptured stones, coins, and such like, which have been unearthed there from time to time. On an early visit, there was observed, leaning against a boundary wall, a dressed slab of sandstone, on one face of which was inscribed a simple cross, the arms of the cross standing, as it were, between a series of circles symmetrically arranged. The incisions were exceedingly faint owing to the wearing of the stone surface, and had not been observed by the gravedigger, who, on being asked, explained that the stone had been recently disinterred owing to the removal of a recumbent tombstone which he indicated, and under which the cross-stone had been buried. The recumbent tombstone was examined, and bore the date 1778; since when, we may assume, the cross-stone had remained in the safe keeping of the grave, an accident to which it probably owed its preservation. A subsequent visit was paid to the churchyard for the purpose of taking a photograph, or, failing such means of portrayal, of making a rubbing or sketch of the cross. The stone had disappeared from its place against the wall, and, although careful search was made throughout the churchyard, only a few broken fragments, evidently belonging to it, were found on a heap of rubbish, consisting of portions of other broken tombstones. It was clear that the cross-stone had been irretrievably destroyed—a fact since confirmed by appeal to Mr John Mackay, the gravedigger, who writes that “the slab was broken up and built in as part of the foundation for a monument that was put up in the cemetery about the date you mention, *as is always done to old gravestones that are laid aside by the owners.*”¹

On this account I venture to send a short description of it, with a sketch made from memory immediately after the destruction was discovered. I am encouraged the more to do so as it is unlikely that during its short resurrection many or any antiquarians could have seen it in its remote station, 9½ miles from the railway; and since, moreover, subsequent examination has shown that the cross belonged to a type exceedingly rare in Scotland.

¹ The italics are mine!

DESCRIPTION.

The stone (fig. 1) on which the cross was incised was a thick slab of sandstone some 3 feet 4 inches long by 2 feet broad and 7 inches thick.¹ The sandstone was reddish in tint, of moderately fine grain, and may well have been obtained from such a local quarry as that at Port Chasteil

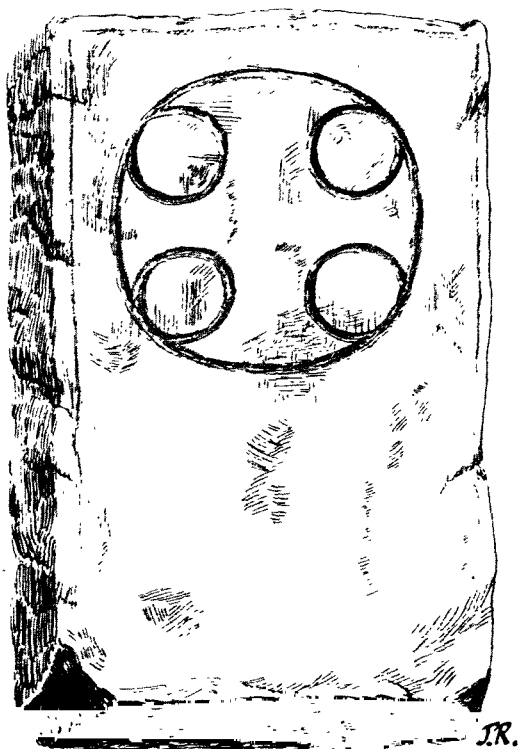


Fig. 1. Simple cross at Tarbat, now destroyed.

towards Tarbatness, whence much of the recent building stone of Portmahomack village has been obtained. The slab was tolerably well dressed on the front surface, but roughly cut on the back—evidence that on the latter side no ornamentation had ever existed. On the face of the stone, the ornament, though its general features were perfectly plain on examination, was much less evident than the artificer had designed, owing to the wearing or weathering of the surface.

¹ These measurements were made from the impress of the stone left in the turf upon which it had rested.

The design was confined to the upper half of the face of the slab. Here four simple incised circles were carved, standing in relation to one another as the four corners of a square. These were contained in a larger circle which at the points of contact blended with their grooves. This simple design gains its significance not from the circles but from the interspaces between them, which form a well-defined and graceful Maltese cross, with arms gradually widening towards the circumference. So far as I could see, the centre of this cross was perfectly plain and free from ornament, and there was certainly no trace of a shaft. It seemed to me, however, that an artificial incision ran along the border of the dressed face a short distance from the edge of the stone, but owing to the serious erosion of the surface I could not state this as a definite fact in view of the impossibility of subsequent examination. In the figure I have considerably exaggerated the clearness of this supposed line, as well as of the details of the cross itself, as compared with the actual appearances on the stone.

GENERAL REMARKS.

The simple cross described above most nearly resembles—amongst the types of crosses recorded from Scotland—the “circular cross with expanded ends to arms, and arms of equal length, without shaft,” catalogued as No. 107 in Allen and Anderson's *The Early Christian Monuments of Scotland*, 1903, part ii. p. 55. Crosses somewhat of this type have been found at Millport, Cumbræ (see Stuart's *Sculptured Stones of Scotland*, pl. 26, fig. 10), and at Bressay in Shetland (see Allen and Anderson, *op. cit.*, part iii. p. 7, fig. 4). But obvious differences distinguish the present from former examples. For instance, the spaces between the arms are here quite circular, whereas at Bressay they are pointed oval, almost lozenge-shaped, and at Millport polygonal. Most striking, however, is the simplicity of the Tarbat cross. It contrasts strongly with the rather feeble attempts at elaboration in the incised Millport cross, and still more strongly with the highly ornate relief work which fills in the interspaces in the Bressay example. It is possible that between the Bressay design and that described here there may be some geographical relationship; but on account of its simplicity both of design and execution it seems to me that the Tarbat cross belongs to a much earlier period, and that it stands to some extent by itself amongst the early crosses of Scotland. History is not at variance with the idea of the great antiquity of the cross, for at Tarbat one of the earliest of Scottish Christian settlements was established by St Colman, after whom the neighbouring village of Portmahomack is named.

MONDAY, 10th May 1915.

THE HON. JOHN ABERCROMBY, LL.D., President,
in the Chair.

A Ballot having been taken, the following was duly elected:—

Fellow.

JAMES GARDNER, Solicitor, Clunie, Paisley.

The following Donations were exhibited, and thanks voted to the Donors:—

(1) By JAMES URQUHART, F.S.A. Scot., the Author.

The Life and Teaching of William Honyman Gillespie of Torbanehill.
Edinburgh, 1915. 8vo.

(2) By THOMAS REID, Arnold House, Lanark, the Author.

Lanimer Day, Lanark, 1570 to 1913. Edinburgh, 1914. 8vo.

(3) By DAVID MURRAY, LL.D., F.S.A. Scot., the Author.

David Laing, Antiquary and Bibliographer. Glasgow, 1915. 8vo.

(4) By JAMES LYLE, F.S.A. Scot.

Poems on Various Subjects and Occasions, by Alexander Robertson of Struan. Edinburgh, n.d. 8vo.

The History and Martial Atchievements of the Robertsons of Strowan,
and the Poems on Various Subjects and Occasions, by Alexander
Robertson of Strowan. Edinburgh, n.d. 8vo.

The following Communications were read:—

I.

NOTES ON A COLLECTION OF COINING INSTRUMENTS IN THE
NATIONAL MUSEUM OF ANTIQUITIES, EDINBURGH. BY W. J.
HOCKING, CURATOR AND LIBRARIAN OF THE ROYAL MINT.

By the kind permission of the Director, I was afforded facilities for examining the coining instruments in the National Museum, Edinburgh. The collection is of much value historically, while numerically it ranks in this country next to that in the Royal Mint Museum.¹ It is well known that our national records are deplorably lacking in examples of the mediæval tools used in the production of medals and coins. On this account alone, therefore, it is of special interest to find that this collection includes a coinage die of the fourteenth century, a medal die of the sixteenth century, and a considerable number of both coinage and medal dies of the seventeenth century. Fresh material is thus added to the scanty store existing for the study of the rise and development of this important branch of the fine arts.

Amongst the collection, which is mainly composed of dies prepared for use, there are also pattern dies. The latter, in addition to their special features of workmanship and design, have an attraction for the numismatist because, so far as can be ascertained, no corresponding coins or medals have as yet been recorded.

The collection contains in all 163 matrices, puncheons, and dies in great variety. For the purposes of this paper they may be divided into the following classes :

- (I.) 137 for coins.
- (II.) 11 for medals.
- (III.) 3 for tradesmen's tokens.
- (IV.) 12 sundry small punches.

COINAGE DIES.

(I.) I have placed in this group all the matrices, punches, and dies which appear to have been used or prepared for the striking of coins. Nearly the whole of the group belongs to the second coinage of Charles II. for Scotland. Of the 137 dies, 1 only is of the fourteenth century, 2 are of Queen Anne's reign, while the remaining 134 are for the

¹ I find, however, that the collection at the British Museum, including medal dies, contains, with recent additions, between 400 and 500 pieces, and therefore comes next to that at the Mint, which numbers upwards of 7000.

silver and copper coinages undertaken in the years 1675 to 1682, including pattern dies.

The oldest tool is a reverse die for striking silver pennies (fig. 1;

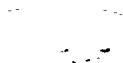


Fig. 1. David II. penny, reverse die or trussel.

and fig. 2, No. 1). This coining iron is about $3\frac{3}{4}$ inches in length and of the roughly cylindrical shape usual in the upper die or trussel of the mediæval period, when the percussive blow necessary to impress the disc of silver or other metal with a copy of the engraved face of the die was delivered by means of a hammer.

This form of the royal style is first found on the pennies of the second issue of Alexander III. (1279), and was continued on the coins by successive monarchs, with minor modifications. In the reign of David II. (1329-1371), moneyers were introduced into the Scottish Mint from Italy, and a marked artistic improvement is observable in the coins of this reign, analogous to the improvement which characterises contemporary English coins. This Lombardic influence is noticeable in the lettering as well as in the portraiture and the general style of the coins of David II., and constitutes a mark of identification.

The circumscription is divided, according to the usage of the period, into four sections by the limbs of the cross, and its arrangement, compared with coins of David II. and with those of his predecessor, Robert Bruce, is as follows:

- | | | | | | | | | | | | | | | |
|-----|---|---|---|---|---|---|---|---|---|---|---|---|---|---------------------------------|
| (1) | ✠ | S | Q | O | T | O | R | V | M | ✠ | R | Q | X | (Museum die.) |
| (2) | | S | Q | O | T | O | R | V | M | R | Q | X | ✠ | (Bruce : No. 225 in Burns.) |
| (3) | | R | Q | X | S | Q | O | T | O | R | V | M | ✠ | (David II. : No. 229 in Burns.) |
| (4) | | R | Q | X | S | Q | O | T | T | O | R | V | ♂ | (David II. : No. 233 in Burns.) |

¹ The inscriptions are taken from the plates in vol. iii. of Burns, *Coinage of Scotland*.

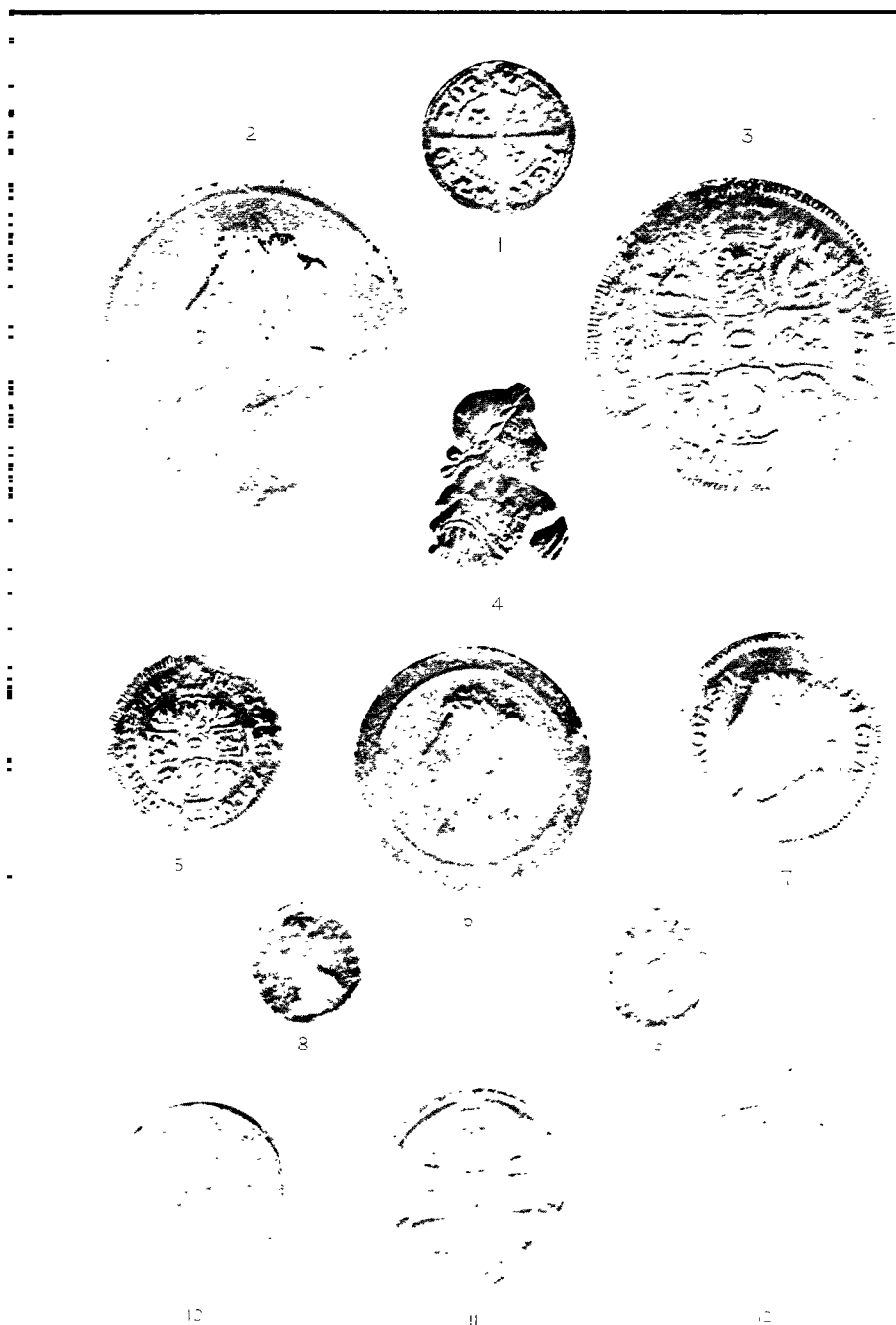


Fig. 2.

1. David II. long cross penny, reverse.
2. Charles II. dollar, obverse.
3. Charles II. dollar, reverse, date?
4. Charles II. merk?, obverse, pattern.
5. Charles II. eighth-dollar, 1675, reverse.
6. Charles II. pattern twenty-merk?, obverse.
7. Charles II. quarter-dollar, obverse.
8. Anne twopence, obverse.
9. Anne twopence, 1711, reverse.
10. Charles II. pattern reverse, 1675.
11. Charles II. twenty-merk?, pattern reverse, outline only.
12. Charles II. pattern reverse, 1675.

The reverse dies, bearing dates which remain legible, are as follows :

Half-dollar	1681
Quarter-dollar	1679, 1681, 1682
Eighth-dollar	1675, 1676, 1680
Sixteenth-dollar	1681
Bawbee	1679
Bodle	1677

It was a well-established Mint custom that, upon the introduction of a new coinage, the dies of the preceding type were formally defaced.¹ In view of this practice it is difficult at first sight to account for the great preponderance, in this collection, of dies appertaining to one short period only, 1675-1682, and for the entire absence of their immediate predecessors and successors.

The Scottish records relating to this period show, however, that in 1682, the latest date appearing on any of these dies, a Commission was appointed under the Great Seal to inquire into the management of the Mint and the conduct of the officers.² In consequence of the report of the Commissioners, it was ordered by royal warrant that all coinage work should cease forthwith, and that the Lord Hatton, General of the Mint, Sir John Falconer, Master of the Mint, Alexander Maitland, Warden of the Mint, and Archibald Falconer, another officer, should be removed from their respective offices and prosecuted for malversation.

It would therefore seem more than probable that the whole of the working stock of dies in the Mint at the time were impounded by the Commissioners, along with the official accounts and other items, for use as evidence in the trial of the defaulters.

A note of Cochran-Patrick³ states that, in 1862, 128 dies of Charles II. of which "there is no list extant" were presented to the National Museum of the Antiquities of Scotland by the Queen's Remembrancer. Presumably those dies are included with the ones here described. It would be interesting to learn the whereabouts of these dies between 1682 and 1862.

This silver coinage was authorised by an Act of the Privy Council

¹ See Act of Parliament of Scotland, James II. (25th Oct. 1451), c. 13.

² It may be more than a coincidence that two years before, Henry Slingsby, Master of the Tower Mint, was suspended by royal warrant, dated 9th June 1680, and a Commission was appointed to examine Mint affairs in London and to carry on the work of the department.

³ *Records of Coinage of Scotland* (1876), vol. i. p. liv.

dated 25th February 1675, in accordance with a royal warrant dated the 11th of the same month.¹ By this authority the reverse designs were to be changed. The alteration of the existing designs consisted mainly in the disposition of the royal arms upon the four shields, which were arranged cruciformly in both issues. In the earlier coinage the arrangement was as follows: the arms of Scotland were placed on the first and third shields, of France and England quarterly on the second, and of Ireland on the fourth. This was in accordance with the arrangement adopted on the Great Seals and coins of both James I. and Charles I. By the new authority the order of the shields of arms, each of which was crowned with the English crown, was to become: (1) Scotland, (2) England, (3) France, and (4) Ireland. This was analogous to the disposition introduced on the English coinage in 1663, the positions of the shields of arms of England and Scotland being relatively reversed. Apparently the change was not welcomed in Scotland, for the quarterings used by Charles I. were revived under James VII.

No mention is made in these official documents of any change to be made in the obverse of the silver coins. But a new effigy of the King, usually regarded as the work of one of the Roettiers, was certainly introduced, which faced to the left instead of to the right as upon the earlier coinage.

Coins corresponding with the dates on certain of the dies as enumerated above are known to exist, with the exception of the eighth-dollar, 1675 (fig. 2, No. 5; and fig. 3, No. 3). This was the first year of the coinage. Rare specimens of the half-dollar and the quarter-dollar of 1675 occur, but it may be presumed, either that no eighth-dollars were struck from the die or dies prepared in 1675, or that very few were issued, none of which survive.

The copper coinage of sixpenny and twopenny pieces was authorised by an Act of the Privy Council dated 27th February 1677.² The amount authorised was 3000 stone weight to be coined in three years, commencing 10th May 1677, which at the rate of two merks to the pound weight was equivalent to £64,000 in nominal value. It was part of the charge brought against the Mint officers by the Commissioners that, much to their personal advantage, they coined this "black money" to the value of £503,466 $\frac{2}{3}$, or nearly eight times the proper amount. There appears

¹ After a trial of the pyx of the money coined from 22nd July 1664 to 4th December 1673, the King wrote on 24th March 1674 to the Privy Council of Scotland, granting the officers of the Mint a "sufficient approbation and exoneration," *Calendar of State Papers, Domestic Series*. See also Cochran-Patrick, *op. cit.*, ii. 163. Accordingly, in 1675, a new coinage followed the issue of this official quietus.

² *Register Privy Council of Scotland*, third series, vol. v. pp. 122, 123.

to have been an Act of the Privy Council directing that the coinage should cease from the 10th February 1680.¹

We now come to the dies for pattern or other coins. This division comprises two punches (an obverse and a reverse) and five matrices or dies. The obverse punch consists of a laureated bust, in profile, of Charles II., facing to the right, in mantle and armour. Its general

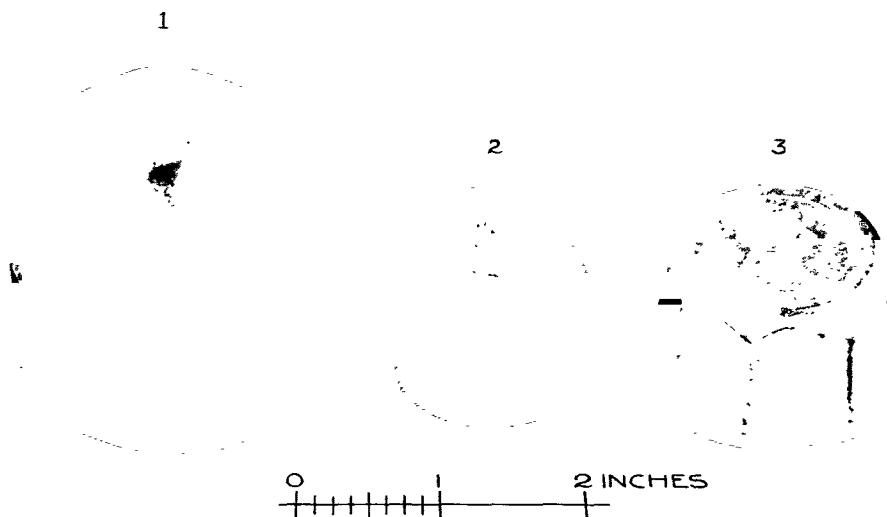


Fig. 4.

1. Charles II. pattern twenty-merk?, reverse punch, outline only.
2. Charles II. pattern merk?, obverse master puncheon.
3. Charles II. pattern twenty-merk?, obverse matrix.

appearance corresponds with the series of effigies used in the first coinage (1664-1675), while its dimensions suggest that it may have been used for the silver merk dies (fig. 2, No. 4; and fig. 4, No. 2).

The obverse matrix has a profile bust of Charles II., laureated and facing to the left, but without any inscription (fig. 2, No. 6; and fig. 4, No. 3). The neck is shown bare and not mantled. The bare-necked bust was at that period employed in many countries on gold coins as a mark of ready distinction from silver coins. This matrix is about the diameter of the English guinea, viz., 1 inch, and would therefore be of suitable proportions for the Scottish twenty-merk piece, puncheons for which

¹ *Register*, vol. vi. pp. 400, 401.

Thomas Simon was ordered to prepare in 1662. It would be gratifying to believe that this represents the work of the celebrated Simon, but it must be admitted that the fact of the bust facing to the left classes it with the second rather than with the first issue, which looked in the contrary direction. On the plate (fig. 2, Nos. 6 and 7), the two busts are placed side by side for comparison, No. 7 being an impression from a matrix for the quarter-dollar (second issue, 1675-1682).

As there were no gold coins for Scotland struck by Charles II., this matrix must be regarded as a pattern, and is on that account of much interest. It is quite probable that the reverse punch was prepared in conjunction with it for the projected gold piece. Its diameter at any rate is in favour of this theory, and the escutcheons placed cross-wise associate it with the coinages of Charles II. (fig. 2, No. 11; and fig. 4, No. 1).

Two of the remaining dies possess features of special interest. Both are dated 1675, which is the year of the introduction of the new silver coinage, and two years before the copper coinage of 1677. The type of the two dies is similar, and consists of a sword and sceptre arranged in the form of a cross of St George, in the angles of which are a rose, thistle, lis, and harp respectively, each being crowned; around is the inscription MAG: BR: FRA: ET HIB: REX, with the date (fig. 2, Nos. 10 and 12; and fig. 5, Nos. 3 and 4).

The dies or matrices are 0.88 inch in diameter, which is greater than that of the bodle and less than that of the bawbee, but is near to that of the eighth-dollar. There is, however, no coin extant, so far as is known, bearing this type. Montagu mentions¹ two pattern farthings, one dated 1676, both of which have the same four symbols, arranged crosswise, but without the sword and sceptre. The inscriptions are similar, but there are four interlinked C's in the centre of the field (see Montagu's No. 33). One of the patterns Montagu himself had not seen, but noted it from a description by the Rev. Henry Christmas.

The dies from their date fall into the period when many patterns were prepared in connection with the introduction of a copper coinage in England. It is quite conceivable therefore that patterns for a similar purpose were engraved for Edinburgh. It will be remembered that a sword and sceptre in saltire formed one of the main features of the design for the copper bodle of 1677, and that the silver sixteenth-dollar in 1675 had a St Andrew's cross with the four national emblems in its angles.

A pair of dies, presented by Robert Sclater in 1865, are included in the collection. They have been described by Cochran-Patrick and

¹ *Copper, Tin, and Bronze Coinage of England*, second edition, 1893, p. 56.

Burns¹ as Maundy twopenny dies of Queen Anne, with which they correspond in general design. On investigation, however, it is found that these coining tools are undoubtedly of Scottish production, and they form the heading for a new chapter in the history of the Edinburgh Mint after the conclusion of its final coinage in 1709 (fig. 2, Nos. 8 and 9; and fig. 5, Nos. 3 and 4).

The date of the dies, 1711, places them in the period immediately

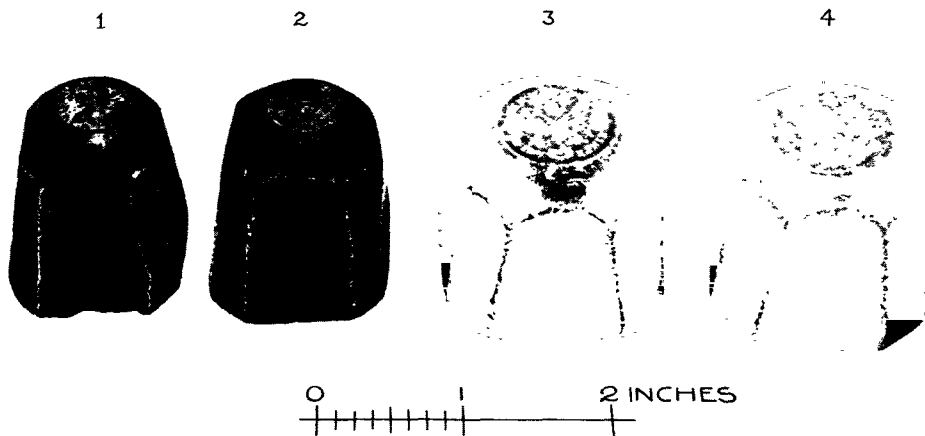


Fig. 5.

- | | |
|--------------------------------------|-----------------------------------|
| 1. Anne twopenny, obverse die. | 3. Charles II. pattern die, 1675. |
| 2. Anne twopenny, 1711, reverse die. | 4. Charles II. pattern die, 1675. |

following the Act of Union, which received the royal assent on the 6th March 1707, and after the close of the great recoinage in 1709. It will be helpful in discussing their origin to state briefly some historical facts regarding the Edinburgh Mint at that time, carrying the history a little further than the point where Mr Cochran-Patrick ceased in his valuable collection of Scottish Mint records, with a view to ascertain what may be known of the work of the Mint in 1711.

After the Act of Union, arrangements were made almost immediately to withdraw the Scottish silver from circulation and to recoin it with designs identical with those in England, but having as a distinguishing mark the letter E for Edinburgh placed under the bust. Officers from the Tower Mint were sent to Edinburgh, so that the methods of coinage

¹ Cochran-Patrick, *op. cit.*, vol. i. p. liv; Burns, *Coinage of Scotland*, vol. ii. p. 535.

and of accounting for the bullion might be co-ordinated with those of London, from whence the necessary puncheons and dies were to be supplied.

By the terms of his indenture,¹ the Master of the Scottish Mint, George Allardes (Allardice), was empowered to coin gold and silver bullion into the several species of money named in the indentures of the London Mint officers—that is, gold pieces from five guineas to half-guineas, and silver pieces from crowns to pennies. The powers relating to gold and small money were not exercised. So far as gold is concerned, a special convoy was sent from London to Edinburgh in August 1707,² while a special warrant, dated 20th June 1707, directed “Allardess” to coin crowns, half-crowns, shillings, and sixpences only.³

Specimens of these four denominations occur in numismatic cabinets, dated both 1707 and 1708, while only rare examples dated 1709 are known, and those of 1709 are confined to the half-crown and the shilling. From the evidence afforded by the dates of existing coins, the conclusion has been drawn by writers on the subject that coinage operations were in progress in the Edinburgh Mint during parts or the whole of the years 1707, 1708, and 1709.

This conclusion is now confirmed from fragmentary evidence found in the Royal Mint record books. The recoinage appears to have come to an end in the early part of 1709, for in a letter addressed to the Lord High Treasurer of Great Britain, Sir Isaac Newton desired that two of the moneyers sent to Edinburgh in 1707 (the third having died meanwhile) might now return to the Tower, “the recoinage of Scottish money being now at an end.” This document was dated 14th March 1708/9, and on the same day instructions, signed by Lord Godolphin, the Lord High Treasurer, were sent to the men for their return to London.

The settlements of the accounts of the recoinage formed the subject of a series of petitions and reports which passed between the Scottish and English Mint officers and various high officers of the Crown for a lengthened period, and finally they seem to have been approved by the Queen in December 1713.⁴ In all these documents it is assumed that the recoinage was brought to a conclusion before the close of March 1709.

Another important fact bearing on our present inquiry whether the operations of the Mint were resumed in 1711 is the decease in the latter part of 1709 of the Master and Worker, George Allardes, who was the responsible officer for the actual manufacture of the coinage. There is in the Royal Mint records a copy of a letter signed by him and dated 12th September 1709; but he must have died during the succeeding three

¹ Cochran-Patrick, *op. cit.*, vol. ii. p. 309.

³ Cochran-Patrick, *op. cit.*, vol. ii. p. 309.

² *Calendar of Treasury Papers*, cii. 113.

⁴ *Calendar of Treasury Papers*, cxliv. 38.

months, since a formal notification of his death was sent to the Treasury Chambers on 12th January 1709/10, with a request that a trial of the pyx might be authorised for the clearance of his accounts.

By royal warrant, dated 22nd June 1710, John Montgomerie of Giffen was appointed his successor. A trial of the pyx was arranged to be held on the 21st August following. On previous occasions this ceremony had been performed by a Committee of the Privy Council in Edinburgh, but in this instance the General of the Mint and his principal officers were summoned to attend "at the house inhabited by the Usher within the Receipt of Her Majesty's Exchequer at Westminster," where the pyx of the Tower Mint would be tried simultaneously. This is the only recorded occasion when Edinburgh coins were tried in London, and the denominations of Scottish coin reported upon by the jury were only the four already named: crowns, half-crowns, shillings, and sixpences. The preceding and the succeeding trials, on the 28th July 1707 and the 7th August 1713 respectively, relate to London coins only.

The amount of silver recoined in 1707-1709 was considerable, and the coin issued in Edinburgh under the supervision of the Tower moneyers is stated officially to have been 103,346 lbs. weight of £320,372, 12s. 0d. in value, which is greater than the whole amount of silver coined in the Tower during the reign of Anne. It is generally supposed that a much greater amount was issued than the above,¹ but I have found no evidence in support of this theory.

While there is nothing in the books to indicate that coinage was resumed in Edinburgh after the trial of the pyx in 1710, there are some entries in the Royal Mint record books which throw considerable light on the origin of the dies dated 1711. There is a copy of a petition from James Clerk and Joseph Cave, conjoint engravers of the Scottish Mint, seeking payment for making puncheons for the coinage of fourpences, threepences, twopences, and pence in accordance with a royal warrant addressed to the General of the Mint. These puncheons were in addition to and apparently independent of a shilling and a sixpenny head and reverse prepared during the recoinage.² The petition was referred by Mr Lowndes, the Secretary of the Treasury, to Sir Isaac Newton and other officers of the Mint, who reported favourably upon the charges claimed for engraving, but disallowed their further claim for £90 on account of the "extraordinary trouble during the coinage."

¹ Hoblyn, in his *Milled Scottish Coins* (*Numis. Chron.*, vol. xix., new series, p. 135), states that the amount of the recoinage was £786,117, 10s. 9d., but without quoting his authority. Only the amount mentioned in the text is found in the statement produced at the trial of the pyx in 1710, and also in Mr Allardes' accounts which finally passed the Privy Seal at the close of 1713.

² Copies of these papers are subjoined, in which the claims are made separately, showing that the two services were distinct (pp. 330-332).

There are two conspicuous facts substantiated by these documents. First, we find indubitable evidence that during the recoinage, 1707-1709, in addition to the dies received from London, new dies were engraved by the engravers in Edinburgh for the shilling and the sixpence. Through the observations of Hoblyn and others made on the coins themselves, varieties in the effigies of these two denominations, but especially of the shillings, have been placed on record, while no corresponding differences have been noted on crowns and half-crowns.

This accredited statement that special dies were engraved in Edinburgh for the shilling and sixpence at once suggests an alluring hypothesis in connection with the long-standing numismatic puzzle to account for the presence of a star alongside of the E below the bust on some of the Edinburgh shillings dated 1707, 1708, and 1709, as well as on some of the sixpences dated 1708, if not 1709. Were not the pieces bearing the E and star struck from the dies engraved locally? At any rate, though not proved, this theory that the star was used as a mark of distinction between dies is *primâ facie* more probable than the suggestion that it indicated a difference in standard as compared with coins bearing E only,¹ since in the latter case the star would be a bold advertisement of a serious breach of indenture.²

Burns records three varieties of head on the Edinburgh shillings, two of which correspond with two varieties found on English shillings. He says: "A third head appears to be peculiar to the Edinburgh shillings. This head seems to be met with only on the shillings with the E and a star, and only on those of the dates 1708 and 1709." But with regard to the sixpences, he does not note any varieties of head whatever. This absence of discernible distinction in the case of the sixpence, however, may very well be due to the comparative smallness of the head, and to the great difficulty of detecting minor differences in portraiture on small coins, which are usually badly worn by circulation. At all events, it must be admitted that the sixpence does not afford any positive evidence. And, on the whole, while there is much to commend this hypothetical explanation of the presence of the mullet, it cannot, up to the present, be said to be established beyond question.

¹ Burns, *Coinage of Scotland*, vol. ii. p. 533.

² After these notes were set up in type, I had the great pleasure of finding that Miss Helen Farquhar, who, by her indefatigable researches has contributed so much to the solution of so many numismatic problems of the Stuart period, had in a recent paper arrived at a similar conclusion to the one expressed above regarding the significance of the five-pointed star found upon certain Edinburgh shillings and sixpences. From the study of collateral evidence derived from *Treasury Papers*, Miss H. Farquhar also inclines to the belief that this star distinguishes the coins struck from the puncheons and dies engraved in Edinburgh by Clerk and Cave (*British Numismatic Journal*, vol. x., 1914, pp. 233-239). And until some contemporary witness can be cited which definitely assigns another meaning to this mint-mark, the suggested explanation may be accepted as having the balance of probabilities strongly in its favour.

Secondly, bearing on our present inquiry, we find from the engravers' claim that dies were prepared in Edinburgh, judging by the date of the dies and of the petition, in 1711 for each of the four small denominations commonly described as Maundy coins. This work was undertaken, as already stated, in obedience to a royal warrant directed to the General of the Mint. In the absence of a copy of this warrant the reason for this preparatory measure can only be surmised. It may safely be assumed that after the comparatively large coinage in the greater denominations, a necessity would automatically arise in Scotland for small change. But if a scheme was projected for a supplementary coinage to meet this demand it does not appear to have been carried into effect. Whatever the object, however, we have this pair of the twopenny dies as evidence of the work for which Clerk and Cave were paid in 1712.

Previous reference has been made to these dies by Mr James Wingate in 1869, in a short note of his in the *Numismatic Chronicle* on a "Pattern Maundy groat in copper of Anne, E1711."¹ There was also a similar impression in silver in the Richardson collection. This pattern groat is clearly from the companion dies to those for the twopence. But they have no title to be described as dies for Maundy coins. Indeed we cannot imagine preparation for such an issue in Edinburgh by Queen Anne. And it was only in the absence of the documentary evidence to the contrary now adduced that Burns concluded that the dies and the impressions dated 1711 were not of Edinburgh.²

There were at this juncture considerable changes in the personnel of the Mint, and this circumstance strengthens the conclusion that no actual coinage took place after 1709. Apart from less responsible officers, we find that the General, John, Earl of Lauderdale, was succeeded after his death by John, Lord Balmerinoch, his commission being dated 17th February 1711.³ Shortly after, he, in turn, was succeeded by Alexander, Earl of Home, whose commission passed the Great Seal on 19th November 1712.⁴ In the case of the Mastership, although John Montgomerie, as already noted, was appointed, in succession to George Allardes, by commission dated 22nd June 1710, his indenture was not confirmed until 3rd April 1712.⁵ Presumably this delay in the indenture of the Master and Worker for nearly two years after his appointment.

¹ *Num. Chron.*, new series, vol. ix. p. 215.

² Burns, *op. cit.*, vol. ii. p. 535.

³ *Register of Great Seal*, vol. xv. p. 455.

⁴ *Reg. Great Seal*, vol. xvi. p. 51. The Earl of Home was followed on 19th November 1714 by Charles, Earl of Lauderdale.

⁵ *Reg. Great Seal*, vol. xvi. p. 15. I am indebted to the courtesy of Mr G. A. J. Lee, the Deputy Keeper of the Records, for these references to the Great Seal papers.

was owing to the fact that the clearance of the accounts of his predecessor was held in abeyance, pending their scrutiny in London.

It is interesting to note that Montgomerie was empowered by his indenture to coin eight species of money, from the crown piece to the penny, its terms in this respect corresponding with those of Allard's indenture. But there can be no relation between this authority and the preparation of the dies for the small money by the engravers, as their work preceded the date of the indenture, and was undertaken, as has been shown, in accordance with a special royal warrant to the General, which it is hoped may be some day brought to light.

PUNCHEONS AND DIES FOR MEDALS.

(II.) The dies hitherto described have been mainly of historical interest as coinage records, and, so far as technique is concerned, the engraving of nearly all of them is extremely poor in execution. The class we now approach has value of another order. In these few examples we are able to study the craftsmanship of the steel-engravers of the sixteenth and seventeenth centuries direct from the burin, and not in a medium of one or more removes from the original, as we must do in medals. Puncheons for portrait medals invariably exhibit work in higher relief than those employed for coinage, and these specimens are specially valuable to this extent. It is easily understood that in preparing for medals of which comparatively few copies are required, the art of the engraver is not restricted in the composition and relief of a design by the necessity of making dies which are suitable for striking large numbers of coins with a minimum of labour.

The obverse die of the Guidiccioni medal, belonging to the first half of the sixteenth century, is perhaps the first in importance in the Edinburgh collection. The period of its origin is notable in the history of numismatic art, since mechanical means then began to be used in the production of medals. Da Vinci and Cellini were among the earliest artists of renown who employed a form of screw-press for striking medals between dies in substitution for the more tedious process of casting them in moulds. Though speedily adopted in France and Germany, it was in Italy that this method originated of rapidly and effectively multiplying replicas of the die-engraver's art.¹

There is good reason for believing that this die was produced in Italy before the middle of the sixteenth century, and therefore in the earliest days of the screw-press. In shape it is cylindrical, and measures 1.625 inch in diameter, and half an inch in thickness (fig. 6). Subsequently, such

¹ *Num. Chron.*, fourth series, vol. ix. pp. 56-76.

dies were made much thicker, being increased to 2 inches and more to suit more powerful presses, as may be seen in the treatises of Boizard and Rochon. But the reverse matrix of the Coronation medal of Charles II. by Simon, which is in the Royal Mint Museum,¹ approximates to the dimensions of the Italian die. It is, however, square and not circular in shape, its measurements being 1·85 inch square and half an inch in thickness.

The portrait is engraved in intaglio upon the face of the die, with the inscription IOANNES GUIDICIONVS, and is enclosed within a border of pearls



Fig. 6. Guidiccioni die (sixteenth century).

or dots of regular size. It presents, facing to the left, a bearded bust in a biretta. The artist, who is unknown, has depicted a person of pleasing expression with much latent strength of character. The modelling and engraving of his subject display delicacy of touch and charm of rendering, and the die is altogether an admirable example of Italian art (fig. 7, No. 1).

Not a great deal appears to be known of Guidiccioni, and nothing which would connect him with Scottish history. He was Bishop of Fossombrone in the Marches near Pesaro in 1524. He was in the service of Cardinal Farnese (who became Pope Paul III. in 1535), and afterwards was made Governor of Rome. He went on an embassy to the Emperor Charles V., and accompanied him on an expedition to Tunis. Further, he is said to have been a poet of considerable merit. He died in 1541.

¹ *Royal Mint Museum Catalogue*, vol. ii. p. 192, No. 4.

An illustration of a medal bearing this bust of Guidiccioni is to be found in vol. i. of the *Museum Mazzuchellianum*, P. A. Gaetani (Venice, 1761), tab. lxvi. 1.¹ On the reverse side of the medal illustrated, Neptune in his chariot is represented subduing the turbulent winds of Æolus, in

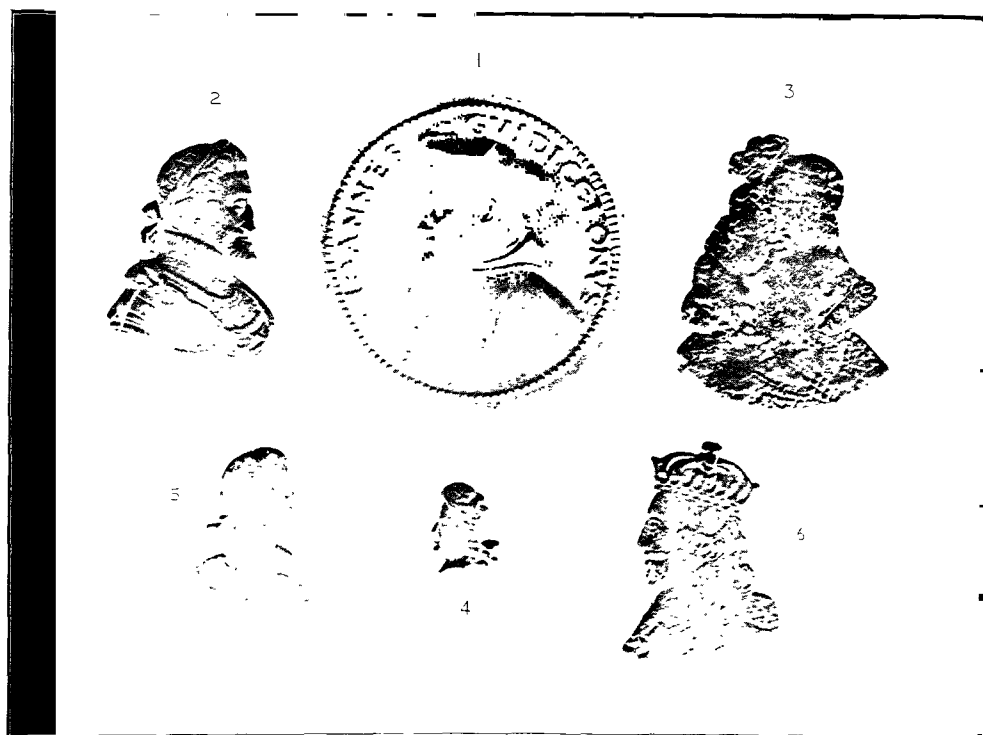


Fig. 7.

1. Joannes Guidiccionus (died 1541).
2. Henry IV. of France (reigned 1589-1610).
3. Marie de Médicis (born 1573, died 1642).
4. Louis XIV. of France, or James, Prince of Wales.
5. Charles I.
6. Charles I. (crowned effigy).

allusion to the successful measures of Guidiccioni in 1539 in quelling political strife in the province of Flaminia.

There are five punchcoons evidently prepared for portrait medals. They are without the inscriptions which, following the customary practice, would be placed on the dies when sunk from them. In the

¹ See also *Les Médailleurs Italiens*, Armand, second edition, 1883, p. 154, No. 15. Mr G. F. Hill, Keeper of the Coin and Medal Department, British Museum, kindly furnished me with this reference.

absence of such dies, or medals from them, the attributions that follow must be regarded as suggestive only. The puncheons are, on the whole, in a state of good preservation, and they all attain a high standard in the best class of die engraving.

Two of them appear to be of French origin, and possess a profusion of detail, which is rendered with richness and elegance. The laureated bust to the right in armour is certainly that of Henry IV. of France

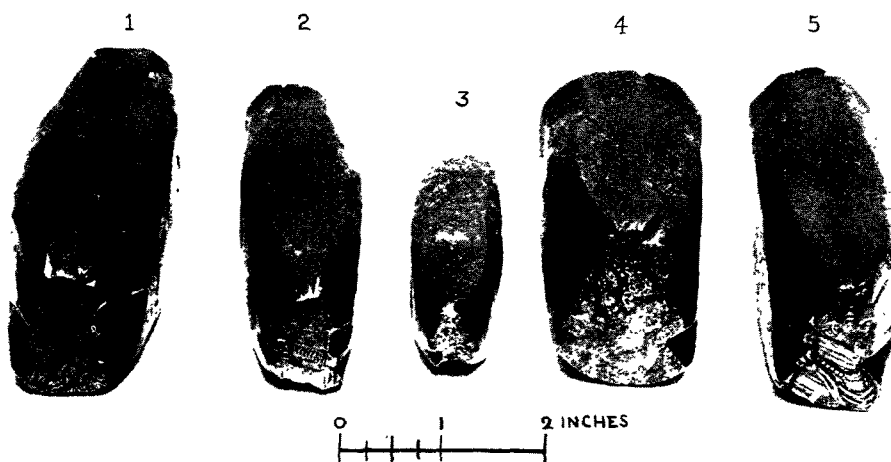


Fig. 8.

1. Charles I. punch (crowned effigy).
2. Charles I. punch.
3. Louis XIV., or James, Prince of Wales, punch.
4. Marie de Médicis punch.
5. Henry IV. of France punch.

(1589-1610); while the crowned bust to the right, with the highly ornamental lace collar and bodice, is certainly a portrait of his queen, Marie de Médicis. There is a medal of hers, dated 1613, in the National Collection at Paris,¹ the bust on which bears an unmistakable resemblance to this puncheon (fig. 7, Nos. 2 and 3; and fig. 8, Nos. 4 and 5).

The small head looking to the left, with long flowing hair, may be Louis XIV. of France, or James, Prince of Wales (fig. 7, No. 4; and fig. 8, No. 3).

The remaining two puncheons have been assigned to Charles I.

¹ *Les Médailles de l'ancienne collection royale*, Paris, 1900, pl. iv., No. 20.

The bare-headed bust to the right with ruff (fig. 7. No. 5; and fig. 8, No. 2) may be compared with the medals illustrated in the *Medallic Illustrations of the History of Great Britain and Ireland*.¹ The bust to the left with lace collar is wearing the English, and not the Scottish crown (fig. 7, No. 6; and fig. 8, No. 1). In this respect, but in this only, it resembles what is known as the rare variety of the Scottish coronation medals, 1633.² The style of the busts on both varieties of the coronation medals differs from this puncheon. Nevertheless, it may, like them, be the work of the celebrated engraver, Nicholas Briot.

In passing, and with reference to these two varieties of coronation medals, one of which is very rare, I do not remember to have seen the rarity of the one case attributed to the fact that on a medal to commemorate the Scottish coronation the King is depicted with an English crown. The commoner variety bears the correct form of crown, the inference being that the first medal was suppressed for this reason.

This explanation is only tentatively suggested, for it may be alleged, on the other hand, that the English crown was placed on the effigy of Charles II. on the medal commemorating his coronation at Scone in 1651, as well as on the counter-seal of his Scottish Great Seal of 1660.³

Four dies included with this group are more modern, and are of no artistic merit. Two of them are for striking medals of the Beggars' Benison Club of Anstruther in Fife. This club was founded about the middle of the eighteenth century, and the medals are mentioned by Colonel Fergusson in his *Life of Henry Erskine*.⁴ He says: "The price of the medal in gold was five (guineas). These medals, the designs of which are classical, it is understood, have attracted considerable attention from those interested in numismatics by reason of their beautiful workmanship." But not everyone would agree with Colonel Fergusson as to either the beauty or the good taste of the medals (fig. 9, Nos. 2 and 3).

The oval reverse die is for the commoner of these medals, which is of a similar design, but is without a local inscription (fig. 9, No. 1). A fourth reverse die is for a smaller variety of the Anstruther medal (fig. 9, No. 4).

The medals are fully described by Cochran-Patrick,⁵ except that he does not mention the small variety (No. 4).

¹ Vol. i. p. 256, pl. xxi. 2, *et al.*

² *Med. Illus.*, vol. i. p. 265, pl. xxii. 2. Cochran-Patrick, *Medals of Scotland*, p. 19. pl. ii. 2, Nos. 5, 6.

³ Anderson, *Diplomatium et Numismatum Scotiæ Thesaurus*, Edinburgh, 1739.

⁴ *The Hon. Henry Erskine, Lord Advocate for Scotland, with notices of certain of his kinsfolk and of his time*, by Lieut.-Col. Alexander Fergusson, Edinburgh, 1883.

⁵ *Medals of Scotland*, p. 172, pl. xxxiii.

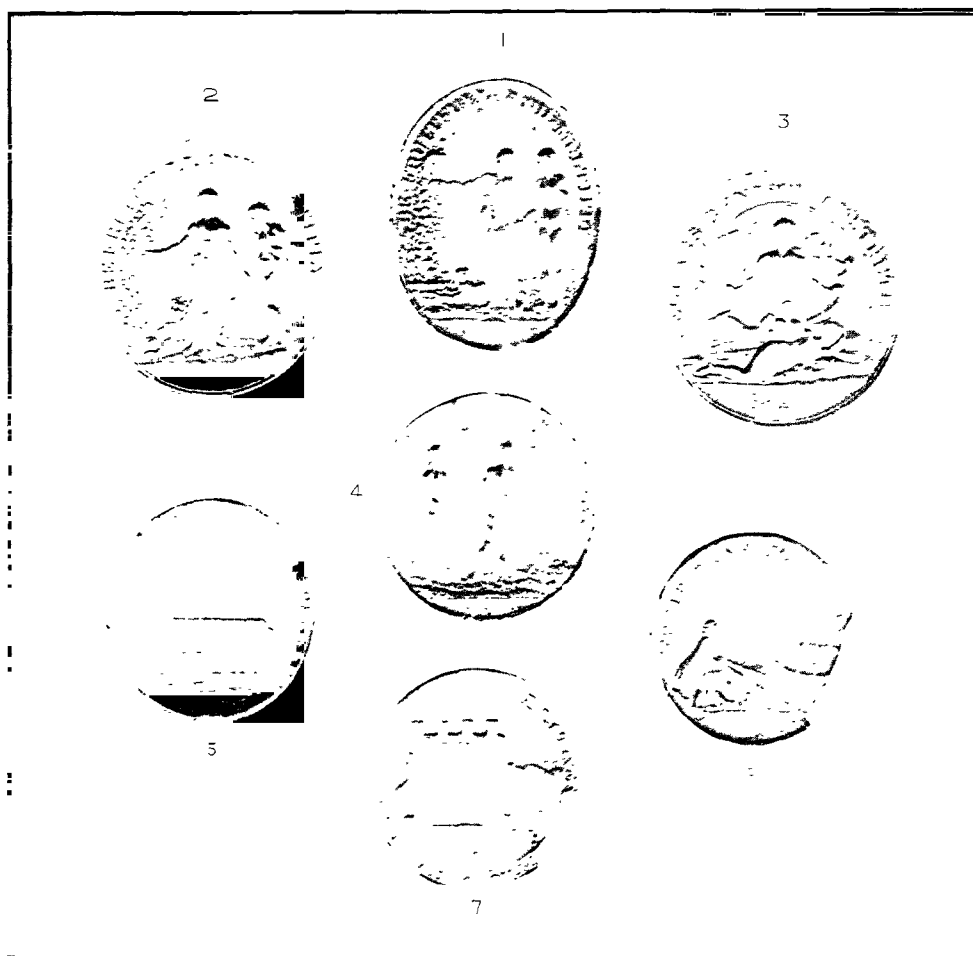


Fig. 9.

1. Beggars' Benison medal (oval form).
2. Beggars' Benison medal, obverse.
3. Beggars' Benison medal, reverse.
4. Beggars' Benison medal (small variety).
5. Dundee tradesman's token, halfpenny, 1797, obverse.
6. Perth tradesman's token, halfpenny, 1797, obverse.
7. Dundee tradesman's token, halfpenny, 1797, reverse.

TRADESMEN'S TOKEN DIES.

(III.) These three dies are reminiscent of the large issues of copper tokens for minor currency purposes which were made by tradesmen

and others at the close of the eighteenth and the beginning of the nineteenth centuries. These tokens were without legal sanction, but were nevertheless freely accepted in the transactions of local trade and commerce. Many thousands of varieties were put into circulation, mainly by individual enterprise, proceeding from most of the important trading towns and manufacturing centres in the three kingdoms. In 1817 an Act of Parliament was passed (57 Geo. III., c. 46) which pro-

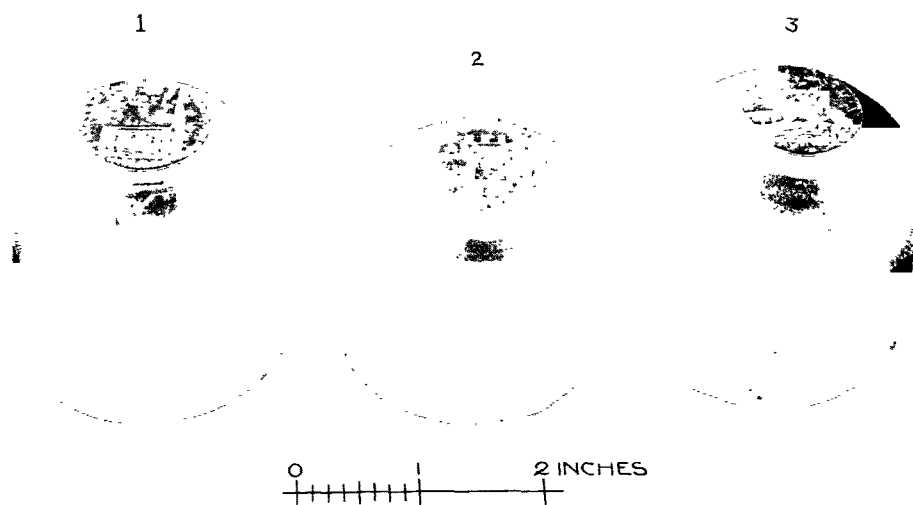


Fig. 10.

1. Dundee halfpenny, 1797, obverse die.
2. Dundee halfpenny, 1797, reverse die.
3. Perth halfpenny, 1797, obverse die.

hibited the manufacture and circulation of private tokens, and imposed heavy penalties for any infringement of its provisions. This measure, coupled as it was with a liberal supply of subsidiary currency, was effectual in suppressing these private coinages.

Two of the three dies form the obverse and the reverse of a Dundee halfpenny, 1797 (fig. 9, Nos. 5 and 7; and fig. 10, Nos. 1 and 2), while the other is the obverse of a Perth halfpenny of the same date (fig. 9, No. 6; and fig. 10, No. 3).

On the obverse of the Dundee token there is a view of St Andrew's Church, which was founded in 1772; and on the reverse is a representa-

tion of the ruins of Cowgate Port, with the inscription, THE LAST REMAINS OF OUR ANCIENT WALLS.¹ On the Perth halfpenny a man is depicted dragging a fishing net ashore, the boat being drawn up on the beach. The inscription is RETE TRAHITO FAUSTE. There is no die for the reverse, but the design consists of a view of the Tay Bridge, which was finished in 1770, and of the arms with motto of Perth.² The token from this die was lettered on the edge PAYABLE ON DEMAND BY JOHN FERRIER.

In the exergue of the dies are the words WRIGHT JUNR. DES. This indicates that they were designed, though not cut, by James Wright, junior, of Dundee, a noted coin-collector of the time. He took an active and zealous part in supporting and spreading the issue of private tokens, in silver as well as in copper. In the *Gentleman's Magazine* for 1796, writing as "Civis," he, with more enthusiasm than justice, compared his times with the Grecian age when every city issued its own coins. Wright also wrote introductions to two contemporary handbooks on coins, viz., Conder's *Provincial Tokens*, and Denton's *Virtuoso's Companion*.

MISCELLANEOUS TOOLS.

(IV.) This class comprises sundry small punches and tools which were used by the engraver in the preparation of various dies. Whatever small interest they possess is purely technical, and does not call for special remark.

EXTRACTS FROM RECORDS AT THE ROYAL MINT.

To the Right Hon^{ble} Rob^t Earle of Oxford
L^d high Treasurer of Great Brittain.

The Petition of James Clerk, and Joseph Cave conjunct Engravers
of her Maj^{ty} Mint in Scotland

Humbly Sheweth,—

That your Petitioners at the time of the Recoinage in Scotland did by order of the Master and Worker make One Shilling Head and Reverse, one Six penny Head and Reverse, and by virtue of a Warr^t from her Maj^{ty} directed to the General of the s^d Mint they have since made Puncheons and letters for Small Coine, viz. Four pence. Three pence, Two pence and One penny, having only a Sallary of £50 a year as Sinkers, and no allowance as Gravers.

¹ See Atkins, *Tokens of the Eighteenth Century*, p. 296, No. 16.

² Atkins, *op. cit.*, p. 324, No. 1.

That they have received no paym^t for their Extraordinary trouble during the great coynage as has been allowed to the other Officers.

That there is owing to them on the above Accounts and for Mr Cave's charges in attendance as by Schedule annexed the sum of £210.

Wherefore they humbly pray your Lordship to give such directions for payment thereof as your Lordship in your great Wisdom and Goodness shall think fitt. and your petitioners shall ever pray &c.

For the Shilling Head and Reverse	£30
Six penny Head and Reverse	20
The four pence. three pence. two pence. and one penny Heads and Reverses with letters	70
Their extraordinary trouble during the coynage	60
Mr Cave's charges and attendance	30
	<hr/>
	<u>£210</u>

WHITEHALL TREASURY CHAMBERS.

7th Jan. 1711.

The Right Honorable the Lord high Treasurer of Great Britain is pleased to referr this Petition to the Warden Master and Worker and Comptroller of her Maj^{ty} Mint, who are to consider the same and report to his Lordship with all convenient Speed a true State of the matter therein contained together with their Opinion what is fit to be done therein.

W^m LOWNDES.

Clerke and Cave referred to Officers of the Mint.

To the R^t Hon^{ble} the Earl of Oxford and Earl Mortimer
Lord High Trearer of Great Britaine.

May it please Your Lordship,—

In Obedience to Your Lordships Orders of Reference of the 7th of January last upon the Annexed peticon of M^r James Clerk and M^r Joseph Cave Conjunct Engravers of Her Maj^{ty} Mint in Scotland craving an allowance for making puncheons for the Use of that Mint; We humbly Represent to Your Lordship that We have considered the Same, and finding that they are only allowed a Salary of £50 p. ann. between them for Sinking and finishing of Dyes, and have no allowance for puncheons We are humbly of Opinion they be allowed for their Work of this kind after the following rates, Viz^t

For the Shilling head and Reverse fifteen pounds; for the Sixpenny Head and Reverse Ten pounds (which were the Rates allowed to the

Gravers of the Mint in the Tower for the like puncheons made by them for the late Recoinage of the Moneys in Scotland) Also for the four penny Head and Reverse Eight pounds; for the Three penny head and Reverse Seven pounds; for the Two penny head and Reverse Six pounds, and for the penny head and Reverse four pounds in all Fifty pounds.

As for the Extraordinary trouble of the Officers of that Mint during the Recoinage, We humbly Certifye to Your Lordship that we have hitherto reported no Allowance, and that We find that Mr Cave's attendance was without Order and Voluntary.

All w^{ch} is most humbly Submitted to your Lords^{ps}
great Wisdom.

MINT OFFICE. *the 16th July 1712.*

II

NOTES ON A NECKLACE OF GLASS BEADS FOUND IN A CIST IN DALMENY PARK, SOUTH QUEENSFERRY. BY PROFESSOR G. BALDWIN BROWN. F.S.A.Scot.

On January 21, 1915, a despatch was forwarded from a portion of the military area on the shores of the Forth, announcing the discovery of an ancient burying-place. The operations which laid it bare were connected with the fortifications, and the Royal Engineer officer in charge at once reported the matter to his headquarters. Directions were promptly issued to have all the sand and soil from the grave carefully sifted and all objects punctiliously preserved—a course of action for which the military authorities should receive the cordial thanks of all who are interested in the national antiquities. Grateful acknowledgments are likewise due to the noble proprietor of the land where the discovery was made, the Earl of Rosebery, K.G., F.S.A.Scot., who, with ready generosity, presented the objects found in the grave to the Society of Antiquaries of Scotland to be placed in the National Museum under their charge.

The despatch was sent by an old Edinburgh University student, and on January 28 Mr A. O. Curle and the present writer visited the spot, where they were shown the site and the relics of the grave. The following notes on the interment were drawn up by Mr Curle:—

“The grave was situated at the highest point of a boldly projecting promontory, at an elevation of about 110 feet above sea-level. It lay

east and west, and, as the relics along with several teeth came from the west end, it may be assumed that the head lay in that direction.

"The grave was formed of rough sandstone slabs which had evidently been removed from their bed in the rock. The length of the cist was some 5 feet; the longest single slab in the side being about 3 feet 6 inches. The breadth of the cist was not ascertained before its destruction, but the thin slab which formed the cover is about 2 feet broad. There was no regularly made floor, but much dark vegetable mould was noticed on the bottom. At the east end the cover lay only some 8 to 10 inches below the surface, and at the west end, in which direction the ground slopes upwards, the depth of the overlying material was about 2 feet.

"The soil in which the burial took place is pure sand."

The relics mentioned above consisted in sufficient portions of a body to show that the interment was an inhumation one, and some objects of personal adornment; the former were a few teeth, the latter a dozen glass beads. The archæological question which at once presented itself was the following:—Does the character of the interment and of the beads give any colour to the hypothesis that the burial was that of an Anglian sea-rover or early Anglian settler? The complete absence from Scotland south of the Forth of relics of the pagan Anglo-Saxon period is a remarkable fact that has often excited comment; while an inhumation burial in a cist, on high ground, oriented east and west, with the head of the body to the west, accompanied by a string of glass beads, offers nothing at all inconsistent with an Anglian origin. As bearing on this, it may be mentioned that slabs of laminated sandstone covered some of the bodies in the Jutish cemeteries at Ozengell in Thanet and Goldston by Richborough, Kent, and at Chessell Down in the Isle of Wight; upright slabs lined some of the West Saxon graves at Frilford in Berkshire, while in the Anglian cemetery at Sleaford in Lincolnshire and the Anglo-Saxon one at Kempston, Beds, similar phenomena presented themselves. The appearance of an inhumed body with eastward orientation, that is, a body laid with head towards the west, is quite common in pagan as well as Christian Anglo-Saxon cemeteries, and there is no item of tomb-furniture found in such cemeteries more common than the string of glass beads.

The few sentences that follow are directed, first, to the question of the Angles in Southern Scotland, and, next, to that of the character of the beads as bearing on their possible or probable provenance.

It is not easy to reconcile the abundant notices drawn from British sources of the presence of Anglo-Saxon raiders in Northern Britain from the first period of the Teutonic incursions with the absence, not

only from Southern Scotland but from England north of the Tyne, of relics of the pagan Anglo-Saxon period. The chief British sources are Nennius and Geoffrey of Monmouth, and they tell us of long-continued and strenuous contests between native Briton and immigrant Teuton of which Northern Britain was the scene. Exactly how much historical worth these notices possess it is impossible to say, but at the present time the tendency is decidedly against that wholesale rejection of evidence of the kind that was in fashion a generation or so ago. Geoffrey of Monmouth is no doubt a romancer, but are we prepared in our present way of thinking to reject entirely the statement with which he opens and closes his *History of the Kings of Britain*, to the effect that a historical person of his time, Walter, Archdeacon of Oxford, had given him "a very ancient book, written in the British tongue," the contents of which Geoffrey had incorporated in his own work? This shadowy volume has been much discussed and as a rule discredited, but a recent writer of high authority¹ is disposed to believe in it. If Geoffrey of Monmouth were really in possession of documents of British origin which embodied some genuine traditions of the age of Teutonic inroads his *History* may be used to corroborate and extend the slighter notices in the *Historia Britonum* of Nennius.

In connection with the first appearances of the Teutons, Nennius² and Geoffrey of Monmouth³ both make Hengist and Vortigern arrange to hand over the regions in Northern Britain near the Roman wall to the former's two kinsmen, who are represented as sailing round the country of the Picts and taking possession of extensive territories, in connection with which is mentioned the "Frisian Sea." This appears to be the Firth of Forth, for Joceline of Furness in his *Life of Kentigern*, chap. viii., refers to a place apparently near Culross on the Forth as "Fresicum litus," and this has been held as evidence of early Frisian settlements in this region. Later on, reinforced by a great Germanic fleet from across the North Sea, the Teutons "invaded the parts of Albania," that is Northern Britain, "where they destroyed both cities and inhabitants with fire and sword." The Britons contended against them with "varying success, being often repulsed by them and forced to retreat to the cities," while more often they routed their Teutonic assailants "and compelled them to flee sometimes into the woods, sometimes to their ships." The varying fortunes of the struggle as indicated in the British sources are in accordance with likelihood, and there is a touch of actuality in the notices that when the British

¹ Ernst Windisch, *Das Keltische Britannien bis zu Kaiser Arthur*, Leip., 1912.

² Nennius, *Hist. Brit.*, § 38.

³ *Hist. Reg. Brit.*, vi. xiii.

were defeated they fled to the cities while the worsted Saxons betook themselves to the woods or to their ships.

From about the middle third of the fifth century onwards we may accordingly represent to ourselves different bodies of the Angles entering the estuaries of the eastern coast of Northern Britain, and forcing their way inland up the streams. The Forth, the Tyne, the Tees may have been thus entered, as well as the Humber, the rivers debouching on the Wash, and the Thames. All would equally invite the access of the war-galleys and offer facilities for riparian settlements. As a fact, however, though all along the courses of the south-eastern rivers, such as the Trent and the Thames, numerous cemeteries of the pagan period indicate the sites of early Anglo-Saxon villages, in the northern portion of the old Northumbrian kingdom from the Tyne valley to the Forth no such evidence of settlement is known to exist. In no one of the numberless ancient graves opened in the Lothians, in Clydesdale, or on the Borders, has a fragment of an "Anglian" urn or a skull of Anglo-Saxon type, or a single weapon or ornament of Saxon character come to light. Indeed, no Anglo-Saxon cemeteries are known north of Darlington and Saltburn-on-Sea, and no examples of Anglian art or industry of the pagan period have been found farther north than Corbridge-on-Tyne.

It is obvious that this negative evidence from the side of archæology almost wholly destroys the impression derived from literary sources of an early Anglian *settlement* of the regions in question. It would suggest that the Anglian attacks were rather in the nature of raids, and that the retirement to the ships may have been the rule even after a victory over the opposing Britons. Anything of the nature of established Anglian communities must have belonged to a later period, when the influence of Christianity had led to a discontinuance of burial in pagan cemeteries and with the accompaniment of tomb-furniture. In the latter half of the sixth century the northern Britons were still aggressive, and in the time of the sons of Ida, the first recorded Bernician king, they seem to have beleaguered the Northumbrian forces for a time in the island of Lindisfarne. The great victory of Ida's grandson Æthelfrith at Degaastane, perhaps Dawston in Liddesdale, was won in a defensive campaign against an invasion of the Scots and probably the Strathclyde Britons, and it was Æthelfrith's successor Edwin who first effected the conquest of the Lothians, consolidated later on in the seventh century into the empire of Oswy and Ecgfrith. By this time the practice of tomb-furniture was dying out, and we should not expect to find the sites of Anglian settlements marked by pagan cemeteries with furnished graves.

It is none the less a matter for surprise that isolated finds have not

come to light to attest the former presence in the north of Anglian raiders, and the interest of the recent discovery of the grave above the Forth resides in the fact that it may conceivably fall under this category. The site and the character of the interment would, we have seen, agree with the suggested hypothesis, and the question must now be asked whether the beads have anything definite to tell us.

All that can be said here with confidence is that all the beads found, with one possible exception, can be paralleled from known Anglo-Saxon cemeteries, but there is no one of them that can be regarded as specially characteristic of the Anglo-Saxon period. We cannot, of course, speak of "Anglo-Saxon beads" as if they were manufactured in England, for the general opinion is that these small, attractive, and practically indestructible objects were imported; nor can we call them "Anglo-Saxon" in a distinctive sense, for beads of the same kinds occur in abundance in continental cemeteries of the Germanic period in general. Beads of the epoch of the Teutonic migration, however, possess a certain character, so that any handful of them found in a Frankish, Alamannic, or Anglo-Saxon sepulchre would be clearly distinguishable in each case from a handful from a grave of the Hallstatt or La Tène or Provincial-Roman kind. At the same time in each handful a certain number of beads could be sorted out that might appear equally well at any other of the periods noted. Otto Tischler believed that certain forms of beads, such as the small blue glass ones, were made at all epochs, but that other forms were so special that they would serve for chronology almost as well as coins. Similar forms, he thought, wherever they appeared were synchronous. Fashions changed from age to age but changed, he thought, everywhere; so that it was not the case that a form might go out of fashion, say in the south, and later on make its appearance in the north. The objection that the objects were practically indestructible, and so would necessarily survive from age to age, he met by affirming that beads were buried with their owners and not kept as heirlooms. Tischler admitted at the same time that beads were so widely and evenly distributed that it was very difficult to sort them out into their proper periods and localities, and he made no systematic attempt to show how these somewhat questionable principles worked out in practice.

The subject is indeed one of enormous extent and complexity, demanding a survey extending over several thousands of years and penetrating into the most out-of-the-way corners of the earth, and no one has endeavoured to treat it as a whole. A communication by Mr M'Lellan Mann on pre-historic beads of early date is contained in the volume of our *Proceedings* for 1905-6, and this is referred to by Sir Arthur Evans in the *Proceedings of the Society of Antiquaries of London*

for 1907-9. There is also the paper by our President in the *Journal of the Anthropological Institute* for 1905. These papers deal with beads of the pre-Teutonic period, from which period, however, certain forms survive to later times. Generally speaking, the earlier Teutonic graves contain small, solid beads, that is, solid save for the hole through which they are strung, of self-coloured glass pastes, shaped either flat like a wheel, or of a more or less globular or cylindrical form, made by rolling a strip of heated material spiral fashion round a mandrel, and smoothing and shaping the mass thus formed against the surface of a polished marble slab. This description applies to six of the Dalmeny Park beads

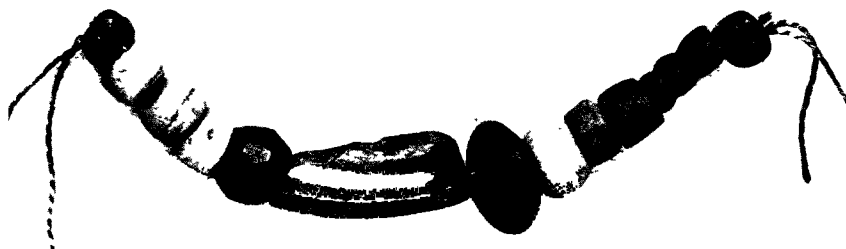


Fig. 1. Beads found in cist in Dalmeny Park, January 1915. $\frac{1}{4}$.

(fig. 1), which are roughly cylindrical, about $\frac{1}{4}$ to $\frac{3}{8}$ inch in diameter, and of opaque green, red, yellow, orange, and white vitreous pastes. Beads not unlike these were found at Corbridge-on-Tyne, with fibulae ascribed to a date of about 500 A.D. Two of the remaining six are smaller, light blue beads, fluted by pressing in at intervals the soft paste with a tool like a paper-knife; they are seen at the extremities of the string. There are four flutes, which give the pieces a cruciform shape. Sometimes such flutes are added on in separate pieces of glass. Another of the six, to the left of the long central object, of a dark blue-green that seems shot with purple, is nicely finished, and is shaped like two truncated cones joined at their bases so as to form in the middle a distinct arris. Such a shape may be found in Anglo-Saxon graves, but is not common. A thin, cylindrical bead of dark-green paste, nipped at intervals so as to look like three globular beads joined by a stem, bears a superficial resemblance to a

well-known form occurring in early Anglo-Saxon graves, but clearly of Roman origin. The resemblance, however, disappears when the technique is examined, for the Dalmeny triple bead is solid save for the central aperture, whereas the beads from the early Anglo-Saxon graves are of blown glass with walls as thin as paper. There remain two of the Dalmeny set. One, the long central object, is a great curiosity, and is, so far as at present appears, unique. It is a portion of the rim of a Roman cup of light grey-green glass, of which the edge has been folded over in such a way as to leave a hollow space, like the hem on the upper edge of a window curtain. This hollow has been exploited for the purpose of turning the fragment into a bead by stringing it with the rest. It is about 1 inch long, and has had the fractured edges carefully ground down upon a stone. It may have formed the central piece of the string. To employ an odd fragment of the kind in this way is quite in accordance with the practice of the Anglo-Saxons, who in a chalk country, like parts of Kent, introduce at times fossils into their necklaces. The last bead to be noticed is a wheel-shaped one of light sea-green glass rather more than $\frac{1}{2}$ inch across and irregularly formed. It is just a blob of glass dropped in a semifluid state on to some flat striated surface, possibly of wood, and when it had spread out, as such a semifluid mass would do, it has been pierced with a central hole by which it was ultimately strung. One side remains flat, with the impression of the striated surface still upon it. It is impossible to say off-hand whether a fellow piece could be found among the extensive yields of the Anglo-Saxon cemeteries.

A comparison of the Dalmeny beads with others found in parts of Scotland where Anglian raiders can hardly have penetrated, is rather against the hypothesis of an Anglo-Saxon origin. Some beads now in the Museum, found a year ago in a broch near Dunvegan in Skye, though by no means duplicates of the recently discovered ones, bear to them a general resemblance that would have to be taken into account. The Dalmeny find is, however, quite of a sort to stimulate search in Southern Scotland for the hitherto missing evidence for the presence here of Anglian raiders in the earlier period of the Teutonic settlements.

III.

BELL IN THE TOWN HOUSE AT BURNTISLAND. BY REV. DONALD MACRAE, B.D., F.S.A.Scot.

The following is a quotation from a little book *History of Burntisland*, by Andrew Young (Kirkcaldy, 1913):—

Pp. 89-90—"I have not discovered when the bell was first obtained, but fortunately chanced on entries in the records of 1677, when having got cracked it was sent abroad to be mended. The expense was met by public subscription. This date corresponds with one on the bell. This beautiful and interesting bell, now resting in the lobby of the Town Hall, is said to have been purchased from Berwick, where it hung in the tower of the Castle. The following inscription makes a circuit of the shoulder, but it is not clear whether I·EN·LAN· is the beginning or end. It may be 'First, in the Year' 1595. I am told there is an estate near Berwick called Claster:—

I·EN·LAN·1595·SOVPLIF·SVIS·NONSIFE·PARLES·HABITANS·DE·
CLASTRE·1677·BEN·YCK·WER·HER·GORTEN·DOR·G·H·S·

"The authorities of the Scottish Museum could make nothing of this. On the side of the bell is a fine relief of an antique ship."

Happening to be at Burntisland for a day, my attention was called to the above extract, but not in time to admit of my going to examine the bell itself. However, by the kindness of the Rev. John Ruggan, M.A., the minister of Burntisland, I was recently supplied with a rubbing which shows both the inscription and part of the ornamentation of the bell. From this I was able to see that Mr Young had given in his *History* an accurate transcript of the inscription. The ornamentation, which consists of grapes and vine leaves, is of a kind not uncommon on bells made in the Netherlands in the seventeenth century.

The inscription, as it stands, looks unintelligible enough at first sight, but closer inspection leads to the following conclusions:—

(1) The bell was one that had been recast, and the date 1677 is the date of the *whole* inscription in its present form.

(2) When the bell was sent to be recast at that date (1677) it had on it a French inscription of date 1595. Some one who knew French took a copy of the latter inscription so as to reproduce it on the recast bell.

(3) The founder was evidently not well acquainted with French, and copied this transcript rather badly, but not so badly as to be beyond restoration. His chief faults were in the division of some of the words

and in mistaking a few of the letters. He added a few words in his own tongue (Dutch) telling when the recasting took place.

(4) The French part of the inscription should evidently read—

EN · L'AN · 1595 — — JE · SVIS · MONTÉE · PAR · LES ·
HABITANS · DE · CLASTRE.

“In the year 1595, I was set up by the inhabitants of Clastre” (? Chastre).

(5) The Dutch part—

1677 · BEN · YCK · WER · HERGORTEN · DOR · G · H · S · I.

“1677. I was remoulded by G. H. S. I.”

This latter part of the inscription I submitted to a Dutch lady, Miss Thérèse Ansingt, who says it is quite good Dutch, but should properly read—

“1677 · BEN · YCK · WEER · HERGOTEN · DOOR · G · H · S · I.”

(6) After the date 1595 there are five letters SOVPL, which obviously should be SOVS L, *i.e.* *Under L*. This was a memorandum by the transcriber to indicate the position of the date in the original inscription, thus—

EN L'AN
1595
JE SVIS MONTÉE, ETC.

The words SOVS L were probably written in brackets, but the founder incorporated them, under the impression that they formed part of the inscription.

I do not know how much value may be attached to the tradition that the bell was purchased from Berwick, and that it once hung in the tower of the Castle. There may be something in it, but one would be inclined to suspect that faulty deciphering by someone of BEN · YCK and CLASTRE may have given rise to the story. Mr Young mentions that he is told there is a Claster near Berwick. It would be interesting to find a bell with a French inscription having been set up by the inhabitants of that estate, and such a thing is not impossible. However, I would be inclined to look somewhere in Belgium where French is much spoken. There is a small place to the south of Brussels called *Chastre* which may more probably be the original home of the bell, and, if so, there probably lies a story behind it. After the upturn in Belgium will it be possible to trace it?

IV

NOTES ON THE REMAINS OF A CRANNOG IN LOCH VENNACHAR.

BY J. S. FLEMING, F.S.A.Scot.

This picturesque Highland loch, of about ten miles in extent, and distant a mile from Callander Hydro, had its waters raised as a compensation reservoir by the Corporation of Glasgow in their Loch Katrine scheme about fifty years ago, to supplement the water supply of the River Forth abstracted from its sources in the upper reaches and impounded by the Corporation. A dam across the exit of that branch of the Teith, a tributary of the Forth, issuing from it, of some fifteen to twenty feet in height, with sluices regulating the outflow, was erected by that body.

At the foot of the loch, about one hundred and fifty yards from its north bank, is visible what seems to the casual eye a large boulder stone projecting, at the water's normal height, a few feet above the surface. The apparent stone is in reality a small modern cairn of stones raised on an islet on the occasion of its submergement, when the water was dammed up and a very considerable extent of the surrounding shores, and land with trees and surface buildings on these, were submerged.

On an unusually dry summer two years ago the contracted waters of the loch left a wide extent not only of the submerged shore, but apparently a considerable part of the lake's original bed, dry, revealing many interesting features of the composition of its bottom. Amongst others, this islet showed, some eight or ten feet above water, an artificial collection of stones. On visiting it by boat I found the stones loose and irregular, showing no design, an oblong heap of about forty feet in length; but any form of a building without cement would necessarily be obliterated by the waves, from the island's exposed condition to the whole swell power of its ten miles of water unsheltered from the westward winds. The islet is quite apparently partly if not wholly artificial, has a depth of water on its outer and upper (west and south) sides of some twelve feet, while its other side, that next the land, is only two or three feet. No gangway of stepping-stones connects it with the mainland, only fifty yards distant; but at its lower end the water was very shallow, and almost dry, at my visit, right across.

Embedded partly in the loose stones on the west or windward side of the island were a few pieces of waterlogged planks, of which the

five sketches are the principal, bearing signs of artificial work (fig. 1); and others may be concealed by the disarranged stones. There were on the windward side also traces on several of the larger stones there of what appeared fire, but the island was bare of everything else, although from

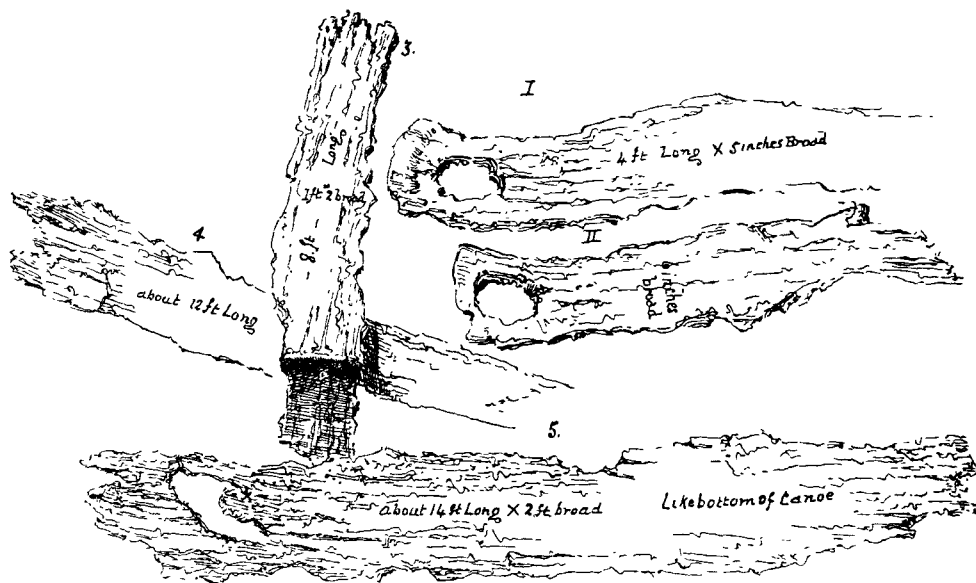


Fig. 1. Relics of shaped wood from the crannog.

- No. 1. Piece of squared wood, with mortised hole through the end.
- No. 2. Do. do. do. do.
- No. 3. Piece of shaped wood, with mortised hole in the end.
- No. 4. Piece of shaped wood.
- No. 5. Piece of shaped wood—probably part of the bottom of a canoe.

the stumps and trunks of trees and saplings there was evidence of a former vegetation, and one tree-trunk had a diameter seemingly of two to three feet, and all were still under water. No. 3 has a cut right across, as if to fit it to a mortised square hole. No. 5 seemed to me the bottom of a canoe. Nos. 1 and 2 have mortised holes. As the waters are unlikely again to contract so low, opportunity may not again occur, but perhaps the sketches may serve to establish the fact of the existence of a crannog on the spot.

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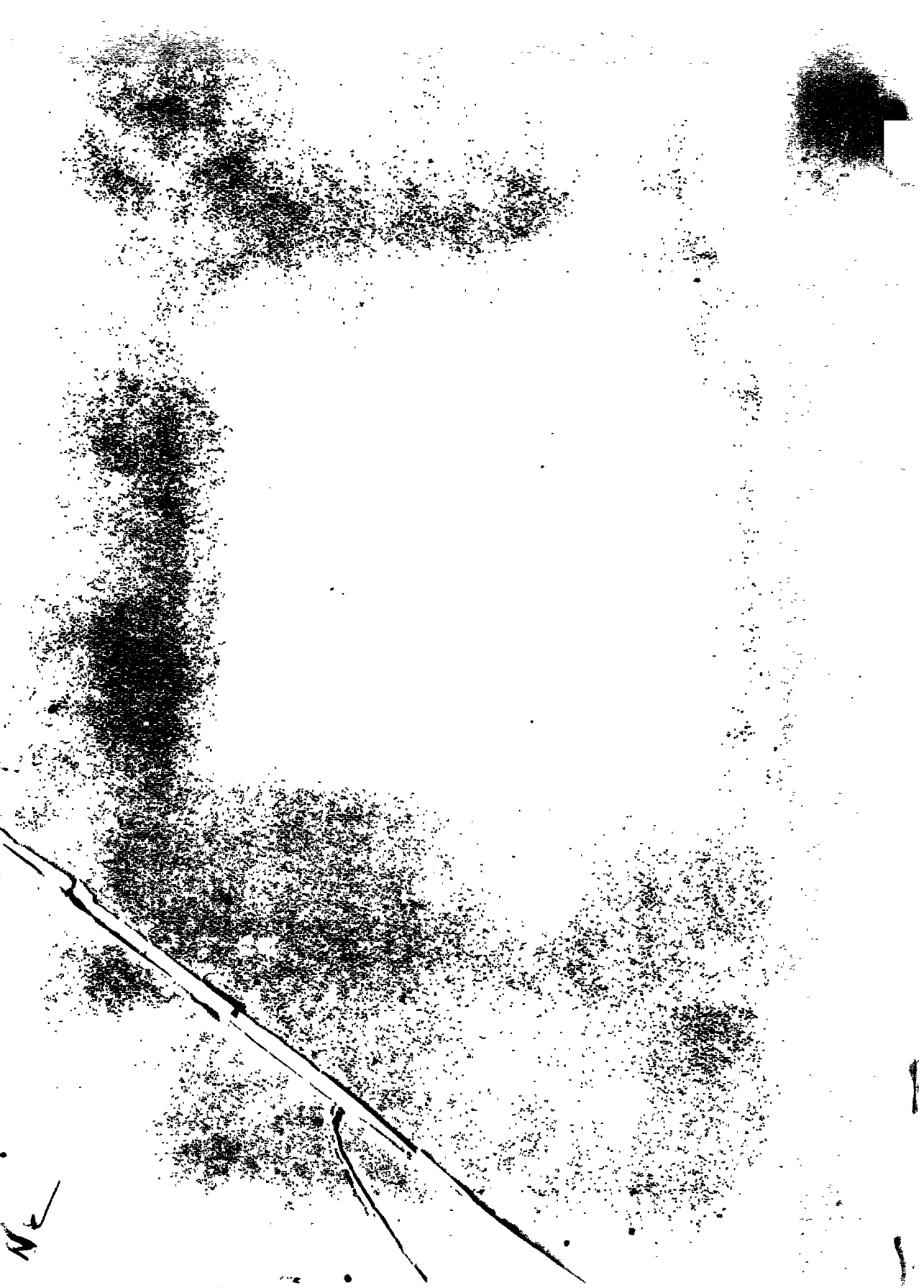
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